

# PATENT ABSTRACTS OF JAPAN

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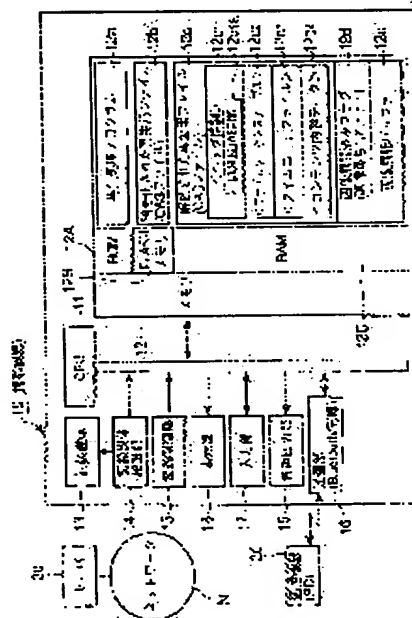
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## (54) REPRODUCTION CONTROLLER AND REPRODUCTION CONTROL PROCESSING PROGRAM

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To execute a synchronous reproduction of various kinds of files with a small load on a CPU in a reproduction controller for reproducing files of audios, images, texts, etc.

**SOLUTION:** According to a reproduction process program 12a stored previously in a ROM 12A, the reproduction controller reads command codes arranged in a time code file 12c3 and parameter data thereof at unit time intervals (25 ms/50 ms) in a command process described previously in a reproducing file 12b (12c) and then only indicates a process corresponding to the command, thereby executing a synchronous reproduction process of texts/images/audio files, etc. corresponding to each command described in the time code file 12c3. Thus the synchronous reproduction of various kinds of files is executed with a very small load on a CPU 11.



## CLAIMS

[Claim(s)]

[Claim 1]

A reproduction information memory measure which arranges a reproduction instruction of two or more kinds of files one by one, and memorizes it for every base period interval which was able to be defined beforehand,

A file storage means which memorizes two or more kinds of files,  
a time check which clocks time -- a means,

this time check -- a reproduction control means which makes two or more kinds of files memorized by said file storage means regenerate according to a reproduction instruction of a file memorized based on time clocked by a means for every base period interval beforehand

defined by said reproduction information memory measure,  
A regeneration control device characterized by preparation \*\*\*\*\*.

[Claim 2]

The regeneration control device according to claim 1 including a reproduction form command for which said reproduction form [ in / two or more / in a reproduction instruction of a file of a kind / each of the file ] is directed.

[Claim 3]

The regeneration control device according to claim 2 when said reproduction form command is [ the reproduction object file concerned ] a text file, wherein it includes a command on which a portion specified with a command among character strings contained in the text file is displayed by a different display style from a portion of other character strings.

[Claim 4]

said -- others -- the regeneration control device according to claim 3, wherein a command displayed by a different display style from a portion of a character string is a command on which a character color, character size, or a character font is displayed by a different display style from a portion of other character strings.

[Claim 5]

The regeneration control device according to claim 2 when said reproduction form command is [ the reproduction object file concerned ] a text file, wherein it includes a command to which the scroll display of the character string contained in the text file is carried out.

[Claim 6]

The regeneration control device according to claim 2 when said reproduction form command is [ the reproduction object file concerned ] a graphics file, wherein it includes a change display of a position of a picture included in the graphics file, or a change display command of size of a picture.

[Claim 7]

The regeneration control device according to claim 2 when said reproduction form command is [ the reproduction object file concerned ] a voice file, wherein it includes a command which had reproduction of the voice file specified and which carries out a time stop.

[Claim 8]

A regeneration control device given in any 1 paragraph of claim 1, wherein base period 1 of two or more kinds of time intervals is defined and said base period interval defined beforehand is set up thru/or claim 7.

[Claim 9]

Further,

A reproduction instruction prediction means to predict a file reproduction instruction after a file reproduction instruction of a base period interval corresponding to current time in a reproduction instruction of a file memorized by said reproduction information memory measure,

A refresh file reserve expanding means which develops beforehand a reproduction object file memorized by said file storage means according to a file reproduction instruction predicted from this reproduction instruction prediction means,

A regeneration control device given in any 1 paragraph of claim 1 characterized by preparation \*\*\*\*\* thru/or claim 8.

[Claim 10]

A reproduction instruction of a file memorized by said reproduction information memory measure includes specification information on a file in a kind and this kind of the reproduction object file,

Two or more kinds of files memorized by said file storage means are matched with an ID number corresponding, respectively, and are memorized,

It has a file ID storage means which matches and memorizes specification information and an

ID number of each file according to a kind of file memorized by said file storage means, According to a reproduction instruction and its specification information on a file memorized by said reproduction information memory measure, said reproduction control means, A reproduction object file corresponding to an ID number memorized by said file ID storage means is read out of two or more kinds of files memorized by said file storage means, A regeneration control device given in any 1 paragraph of claim 1 making a specified file regenerate thru/or claim 9.

[Claim 11]

By a reproduction instruction and said file storage means of two or more kinds of files by which arrangement memory is carried out one by one for every base period interval beforehand defined by said reproduction information memory measure. A regeneration control device given in any 1 paragraph of claim 1 summarizing two or more kinds of files memorized as one file for reproduction thru/or claim 10.

[Claim 12]

It is a reproduction control processing program for controlling a computer of playback equipment,

Said computer,

A reproduction information memory measure which arranges a reproduction instruction of two or more kinds of files one by one, and memorizes it for every base period interval which was able to be defined beforehand,

A file storage means which memorizes two or more kinds of files,

a time check which clocks time -- a means,

this time check -- a reproduction control means which makes two or more kinds of files memorized by said file storage means regenerate according to a reproduction instruction of a file memorized based on time clocked by a means for every base period interval beforehand defined by said reproduction information memory measure,

A reproduction control processing program carries out and it was made to operate and in which computer reading is possible.

## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention]

This invention relates to the regeneration control device and reproduction control processing program for reproducing files, such as a sound, a picture, and a text.

[0002]

[Description of the Prior Art]

As art which carries out the concurrency of the files, such as music, a picture, and a text, and is played, conventionally, For example, the addition data area established in each frame concerned is received for every frame of the voice file in which the information compression was carried out by MPEG-3, In the case of karaoke, by embedding the synchronization information of the text file which should be carried out synchronous reproduction to a voice file, or a graphics file, there are some which carry out synchronous reproduction of a karaoke sound, its image picture, and the text of words, for example.

[0003]

[Problem(s) to be Solved by the Invention]

However, in the synchronous reproduction art of two or more kinds of files using the addition data area of the MPEG file currently performed conventionally in this way. Since the embedding of synchronization information is specified to the addition data area for every frame of a main MP3 voice file, Unless the MP3 voice file concerned is reproduced,

synchronization information cannot be taken out, and synchronous reproduction of the file of other kinds cannot be performed centering on reproduction of an MP3 file.

[0004]

For this reason, when the synchronization information of a text file is embedded at an MP3 voice file, for example, there is a problem which cannot reproduce a synchronous object file unless it omits sound reproduction processing continuously as a non-voice file, even if it is in the period which does not reproduce a voice file.

[0005]

Therefore, conventionally, since synchronous reproduction processing of two or more of this kind file is regenerated considering an MP3 file as a base, there is a problem to which the load of the processing in CPU of playback equipment becomes heavy.

[0006]

This invention was made in view of the above problems, and aims to let it provide the regeneration control device and reproduction control processing program which become possible to perform synchronous reproduction of two or more kinds of files by the load of few CPUs.

[0007]

[Means for Solving the Problem]

That is, a regeneration control device concerning this invention is provided with the following.

A reproduction information memory measure which arranges a reproduction instruction of two or more kinds of files one by one, and memorizes it for every base period interval which was able to be defined beforehand.

A file storage means which memorizes two or more kinds of files.

a time check which clocks time -- a means and this time check -- a reproduction control means which makes two or more kinds of files memorized by said file storage means regenerate according to a reproduction instruction of a file memorized based on time clocked by a means for every base period interval beforehand defined by said reproduction information memory measure.

[0008]

In such a regeneration control device concerning this invention. A reproduction information memory measure which arranges a reproduction instruction of two or more kinds of files one by one, and memorizes it for every base period interval which was able to be defined beforehand, having a file storage means which memorizes two or more kinds of files -- a time check -- based on time clocked by a means, According to a reproduction instruction of a file memorized for every base period interval beforehand defined by said reproduction information memory measure, regeneration of two or more kinds of files memorized by said file storage means is performed.

[0009]

Only by this directing regeneration of a reproduction object file memorized by a file storage means according to a reproduction instruction of a file memorized by a reproduction information memory measure for every base period interval defined beforehand, Synchronous reproduction processing of two or more kinds of files can be performed easily.

[0010]

[Embodiment of the Invention]

Hereafter, an embodiment of the invention is described with reference to drawings.

[0011]

Drawing 1 is a block diagram showing the composition of the electronic circuit of the portable device 10 concerning the embodiment of the regeneration control device of this invention.

[0012]

A program by which this portable device (PDA:personal digital assistants) 10 was recorded on various kinds of recording media, Or the program by which communication transmission was carried out is read, it is constituted by the computer by which operation is controlled by the read program, and the electronic circuit is equipped with CPU(central processing unit) 11.  
[0013]

A PDA control program with which CPU11 was beforehand memorized by ROM12A in the memory 12, Or a PDA control program read into said memory 12 from the external recording media 13, such as a ROM card, via the recording-medium reading section 14, Or it is what controls operation of each part of a circuit according to the PDA control program read into said memory 12 from other computer terminals (30) on communication network N, such as the Internet, via the electrical transmission control section 15, The PDA control program memorized by said memory 12, The input signal according to the user's operation from the input part 17 which consists of a key or a touch panel, Or the signal transmission from other computer terminals (30) on communication network N received by the electrical transmission control section 15, Or it is started according to the signal transmission from the communication equipment (PC:personal computer) 20 of the exterior received via the communications department 16 by the short-distance-radio connection by Bluetooth (R), or wired connection.

[0014]

The indicator 18 which said memory 12, the recording-medium reading section 14, the electrical transmission control section 15, the communications department 16, and the input part 17 are connected, and also consists of LCD, the voice output part 19 which is provided with a loudspeaker and outputs a sound, etc. are connected to said CPU11.

[0015]

The timer of business is built in CPU11 at the time of a processing hour meter.

[0016]

The memory 12 of this portable device 10 is provided with ROM12A, FLASH memory (EEP-ROM) 12B, and RAM12C, and is constituted.

[0017]

A net communications program for carrying out data communications to each computer terminal (30) on communication network N at ROM12A via the system program and the electrical transmission control section 15 which manage operation of the whole portable device 10 concerned, The external instrument communications program for carrying out data communications to the external communication equipment (PC) 20 via the communications department 16 is memorized, and also. Various PDA control programs, such as the regeneration program 12a for carrying out synchronous reproduction of various kinds of files, such as a schedule management program, an address administration program, and a voice text, a picture, are memorized.

[0018]

In FLASH memory (EEP-ROM) 12B. The enciphered file 12b for reproduction (CAS file) which is the target of regeneration based on said regeneration program 12a is memorized, and also. A user's schedule, an address of a friend and an acquaintance, etc. which are managed based on said schedule management program or an address administration program are memorized.

[0019]

Here, the file 12b for encryption reproduction memorized in said FLASH memory (EEP-ROM) 12B is a file for the synchronous reproduction of a text, a sound, and a picture to perform practice and karaoke of English conversation, for example, and is compressed and enciphered by the predetermined algorithm.

[0020]

This file 12b for encryption reproduction is that by which is recorded and distributed, for

example to CD-ROM, or distribution distribution is carried out from the file distributing server 30 on communication network (Internet) N, The file 12b for encryption reproduction distributed by said CD-ROM or the net server (30), For example, after being read into the communication equipment (PC) 20 as a user house PC, transmission storing is carried out via the communications department 16 of the portable device (PDA) 10 at FLASH memory (EEP-ROM) 12B.

[0021]

The decoded file 12c for reproduction (CAS file) which elongated and decrypted said enciphered file 12b for reproduction is memorized by RAM12C, and it is equipped with the image expansion buffer 12e which the graphics file in this decipherment refresh file 12c is developed, and is memorized. The decoded CAS file 12c comprises header information (12c1) which memorizes the batch time (12c1a) of a reproduction instruction and a file sequence table (12c2) mentioned later, a time code file (12c3), and contents data of contents (12c4). And the image expansion finishing flag 12d which shows the image number in which each graphics file developed and memorized has been developed to this image expansion buffer 12e is memorized by RAM12C.

[0022]

A work area is prepared for RAM12C in order to store temporarily various data outputted and inputted by CPU11 according to various kinds of processings in addition to this.

[0023]

Drawing 2 is a figure showing the time code file 12c3 which constitutes the file 12b (12c) for reproduction stored in the memory 12 of said portable device 10.

[0024]

Drawing 3 is a figure showing the file sequence table 12c2 which constitutes the file 12b (12c) for reproduction stored in the memory 12 of said portable device 10.

[0025]

Drawing 4 is a figure showing the contents data 12c4 of contents which constitutes the file 12b (12c) for reproduction stored in the memory 12 of said portable device 10.

[0026]

The file 12b (12c) for reproduction used as the reproduction object file of this portable device 10 is constituted by the combination of the time code file 12c3, the file sequence table 12c2, and the contents data 12c4 of contents as drawing 2 - drawing 4 show.

[0027]

In the time code file 12c3 shown by drawing 2. The time code for performing command processing of various file synchronous reproduction with the certain time interval (for example, 25 ms) beforehand set up for each file of every is that by which description arrangement is carried out, Each of this time code is constituted by combination with the parameter data which consists of the reference number and specification numerical value of the file sequence table 12c2 (drawing 3) for matching the file content (refer to drawing 4) in connection with the command concerned with the command code which directs a command.

[0028]

Description setting out of the certain time interval for performing command processing one by one according to this time code is carried out as batch time 12c1a at the header information 12c1 of the time code file 12c3 concerned.

[0029]

The file sequence table 12c2 shown by drawing 3, It is the table which matched the parameter data of each command described by said time code file 12c3 (refer to drawing 2), and the storage location (ID) number of the actual file content for every several kinds of two or more kinds of files (HTML / picture / text / sound).

[0030]

File data, such as a actual sound matched with said each command code with said file

sequence table 12c2 (refer to drawing 3), a picture, and a text, match each of the ID number, and the contents data 12c4 of contents shown by drawing 4 is memorized.

[0031]

Drawing 5 is a figure matching and showing the contents of a command by which analysis processing is carried out based on the command code, its parameter data, and the regeneration program 12a of the various commands described by the time code file 12c3 (refer to drawing 2) of said portable device 10.

[0032]

As a command used for the time code file 12c3, There are a standard command and an extended command and to a standard command. LT(i-th text load).VD(i-th text sentence paragraph display).BL(character counter reset and i-th clause block specification).HN(highlight-less - character counter count-up).HL (to the i-th character.) A highlight and character count .LS. (One-line scrolling and character counter count-up) .DH. (i-th HTML file display) There is each command of .DI(i-th image file display).PS(i-th sound file play).CS(clear all file).PP(stop during basic time i seconds).FN(end of processing).NP (invalid), and to an extended command. There is each command of MI(it is image file movement to i-th position).SI(it is image file expansion to i-th size).BS(sound file volume i).SS (sound file speed i).

[0033]

Drawing 6 is a figure showing the impaction efficiency gestalt and size-change gestalt of an image file accompanying the extended command described by the time code file 12c3 (refer to drawing 2) of said portable device 10, The figure which specifies the movement zone of the image file accompanying extended command MI in the figure (A), and the figure (B) are figures which specify the change size of the image file accompanying extended command SI.

[0034]

For example, when it is parameter data (i= 1) of extended command MI, the moving display of the image file is carried out to the upper left of image display area, and when it is parameter data (i= 9), a moving display is carried out to the lower right.

[0035]

When it is parameter data (i= 1) of extended command SI, for example, an image file is displayed with standard size, when it is parameter data (i= 2), it is 2 double sizes, and when it is (i= 3), it is indicated by size change with 3 double sizes.

[0036]

Namely, the regeneration program 12a memorized by ROM12A of this portable device (PDA) 10 is started, The file 12c for decipherment reproduction which was decoded from FLASH memory 12B and memorized by RAM12c, For example, when it is the file content shown by drawing 2 thru/or drawing 4 and the 3rd command code "DI" and parameter data "01" are read in connection with the command processing for every fixed time, Since this command "DI" is the i-th image file display command, According to ID number =6 of eclipse \*\*\*\*\* with a link, the picture A of the contents data 12c4 (refer to drawing 4) of contents is read and displayed on the file sequence table 12c2 (refer to drawing 3) from the parameter data i= 01.

[0037]

When the 6th command code "VD" and parameter data "00" are read, for example in connection with the command processing for every time constant [ same ], Since this command "VD" is the i-th text sentence paragraph display command, the 0th clause of a text is displayed according to the parameter data i= 00.

[0038]

Since this command "NP" is an invalid command when the 9th command code "NP" and parameter data "00" are read, for example in connection with the command processing for every time constant [ same ], the present file output state is maintained.

[0039]

The after-mentioned explains anew the detailed reproduction motion about the file 12b (12c) for reproduction of the file content shown by this drawing 2 thru/or drawing 4.

[0040]

Drawing 7 is a figure showing the various file stored conditions of the file 12b for encryption reproduction stored in FLASH memory 12B of said portable device 10.

[0041]

In the file 12b for encryption reproduction, an HTML file, an Image (picture) file, They are collectively stored by various kinds of files of a Text (text) file and a Sound (sound) file, It is stored and outputted to RAM12C as the file 12c for reproduction which this file 12b for encryption reproduction was elongated and decrypted, and was decoded, According to reading and command analysis of the time code file 12c3 (refer to drawing 2) by said regeneration program 12a, synchronous reproduction processing of the various files concerned is performed.

[0042]

And this file 12b for encryption reproduction, Synchronous reproduction processing of still more various files can also be performed with parallel combination with the 2nd file 12b2 (h [ 12b2 ], 12b2i, t [ 12b2 ], 12b2 s) belonging to the 1st file 12b1 (h [ 12b1 ], 12b1i, t [ 12b1 ], 12b1 s).

[0043]

Next, the file regenerative function by the portable device 10 of said composition is explained.

[0044]

Drawing 8 is a flow chart which shows regeneration according to the regeneration program 12a of said portable device 10.

[0045]

For example, the karaoke file etc. which the English teaching-materials refresh file which English study can perform by the sound, the text, and a picture, and karaoke can perform by the sound, the text, and a picture, It incorporates into the communication equipment (PC) 20 which is house PC from CD-ROM or the server 30 on communication network (Internet) N, In the state where the file 12b for reproduction concerned (CAS file) was stored in FLASH memory 12B via the communications department 16 of the portable device (PDA) 10, If reproduction of this file 12b for reproduction is directed by operation of the input part 17, initializing processes, such as clear processing, flag reset processing, etc. of each work area in RAM12C, will be performed (Step S1).

[0046]

And the file 12b for reproduction (CAS file) stored in said FLASH memory 12B is read (Step S2), and it is judged whether the file 12b for reproduction concerned (CAS file) is an enciphered file (Step S3).

[0047]

Here, when it is judged that it is the enciphered file 12b for reproduction (CAS file), decipherment decryption is carried out (step S3 ->S4), and the CAS file 12b concerned is transmitted and stored in RAM12C (Step S5).

[0048]

Then, batch time 12c1a (for example, 25 ms/50ms/--) described by the header information 12c1 of the decoded file 12c for reproduction (CAS file) stored in this RAM12C, It is set up as reading time of the certain time interval of the file 12c for decoded reproduction concerned by CPU11 (CAS file) (Step S6).

[0049]

And a read pointer is set to the head of the file 12c for decoded reproduction (CAS file) stored in RAM12C (Step S7), and the timer for clocking the regeneration timing of the file 12c for



reproduction concerned starts (Step S8).

[0050]

Here, the prediction processing in drawing 9 is started in parallel to the regeneration concerned (step S9). About this prediction processing, the after-mentioned explains that detailed processing.

[0051]

In said step S8, if a processing timer starts, for every batch time according to this reproduction object file 12c set up at said step S6. The command code and its parameter data of the time code file 12c3 (refer to drawing 2) which constitutes the file 12c for reproduction concerned of the position of the read pointer set up at said step S7 are read (Step S10).

[0052]

And the command code read from the time code file 12c3 (refer to drawing 2) in said file 12c for reproduction, When it is judged whether it is "FN" (Step S11) and it is judged as "FN", directions execution of the stop processing of the file regeneration concerned is carried out at the time (step S11->S12).

[0053]

On the other hand, when the command code read from the time code file 12c3 (refer to drawing 2) in said file 12c for reproduction is judged not to be "FN", When it is judged whether the command code concerned is "PP" (step S11->S13) and it is judged as "PP", directions execution of the temporary stop process (processing timer stop) of the file regeneration concerned is carried out at the time (step S13->S14). As for this stop processing, according to a user's manual operation, stop for i seconds and stop release are performed.

[0054]

a time check according to a processing timer again when it succeeds in the input of halt release here based on the user's operation in the input part 17 -- a time check operation is started and according to the timer concerned -- it is judged whether time reached the following batch time 12c1a (step S15->S16).

[0055]

On the other hand, in said step S13, when the command code read from the time code file 12c3 (refer to drawing 2) in said file 12c for reproduction is judged not to be "PP", it shifts to other command processings in drawing 10 (step SA). About other command processings, the after-mentioned explains the detailed processing.

[0056]

and a time check according [ on Step S16 and ] to said timer, when time is judged to have reached the following batch time 12c1a, The upgrade set of the read pointer to the file 12c for decoded reproduction (CAS file) stored in RAM12C is carried out to the position of the following (step S16->S17), The processing from the command code and its parameter data read of the time code file 12c3 (refer to drawing 2) of the read pointer concerned in said step S10 is repeated (step S17->S10-S16). [ of a position ]

[0057]

Namely, according to the regeneration program CPU11 of the portable device 10 was remembered to be by ROM12A, To the file 12b (12c) for reproduction for every unit time of the command processing by which setting-out description is carried out beforehand. Only by reading the command code arranged by the time code file 12c3 (refer to drawing 2) and its parameter data, and directing the processing corresponding to the command, Synchronous reproduction processing of the various files according to each command described by the time code file 12c3 concerned is performed.

[0058]

Drawing 9 is a flow chart which shows the prediction processing by which parallel starting is carried out with regeneration according to the regeneration program 12a of said portable device 10.

[0059]

If parallel starting of this prediction processing is carried out with regeneration of said file 12c for reproduction, The current position of the read pointer to the time code file 12c3 (refer to drawing 2) of the file 12c for decoded reproduction (CAS file) stored in RAM12C is checked (Step R1), The command code "DI" (graphics file display command) after this present pointer position is searched (Step R2).

[0060]

When the "DI" command is searched after the set location of the present read pointer in said time code file 12c3 (refer to drawing 2), and the (step R3), The graphics file of the picture ID number specified based on the parameter data of the concerned "DI" command, It is judged based on the existence of the image expansion finishing flag 12d of an image corresponding ID number whether it is set as whether it is deployment settled and the state in which a display output is possible promptly that is, to the image expansion buffer 12e (Step R4).

[0061]

And command code is carried out after the position of the present read pointer in the time code file 12c3 (refer to drawing 2), The graphics file of the picture ID number which the "DI" command is searched and is moreover specified based on the parameter data of the concerned "DI" command, When it is judged to the image expansion buffer 12e that it is not ending with deployment, the graphics file of the picture ID number of this specification is read from the contents data 12c4 (refer to drawing 4) of contents, and is beforehand developed to the image expansion buffer 12e (step R3->R4->R5).

[0062]

That is, when the "DI" command of a graphics file display is after the command processing of the position of the present read pointer according to the time code file 12c3 (refer to drawing 2) of the file 12c for reproduction, beforehand -- the "DI" concerned -- not being late for processing by predicting the graphics file directed with the parameter data of a command, and developing, when said read pointer actually moves to the position of the next "DI" command - - the appointed graphics file -- promptly -- output displaying -- \*\* -- it becomes like.

[0063]

Drawing 10 is a flow chart which shows other command processings accompanying regeneration according to the regeneration program 12a of said portable device 10.

[0064]

Drawing 11 is a flow chart which shows the contents of processing of each of other command processing accompanying regeneration according to the regeneration program 12a of said portable device 10.

[0065]

When the command code read from the time code file 12c3 (refer to drawing 2) according to the read pointer in said file 12c for reproduction is judged to be "NP" in other command processings, Invalid processing is specified and the present file output state is maintained as it is (step A1 ->END (S16)).

[0066]

When the command code read from the time code file 12c3 is judged to be "LT", it shifts to LT processing in drawing 11 (A) (step A2 ->AB).

[0067]

In this LT processing (i-th text load). The ID number of this text number i is read from the sequence file table (refer to drawing 3) of the decoded file 12c for reproduction by making into the text number i the parameter data read with the command code LT concerned (Step B1).

[0068]

And loading over the work area of RAM12C of the text data which is matched with this ID number and read from the contents data 12c4 (refer to drawing 4) of contents is directed (step

B-2).

[0069]

When the command code read from the time code file 12c3 is judged to be "VD", it shifts to VD processing in drawing 11 (B) (step A3->AC).

[0070]

In this VD processing (i-th text sentence paragraph display), the directions which display the i-th text data loaded to the work area of said RAM12C in the text frame set up by the HTML file are performed (Step C1).

[0071]

When the command code read from the time code file 12c3 is judged to be "BL", it shifts to BL processing in drawing 11 (C) (step A4->AD).

[0072]

In this BL processing (character counter reset and i-th clause block specification), the character counter to the text data first loaded to the work area of said RAM12C is reset (Step D1).

[0073]

And according to read parameter data (i), the i-th clause block of text data is specified with the command code BL concerned (Step D2).

[0074]

When the command code read from the time code file 12c3 is judged to be "HN", it shifts to HN processing in drawing 11 (D) (step A5->AE).

[0075]

In this HN processing (highlight-less - character counter count-up), the directions which count up the character counter to text data one time are performed (Step E1).

[0076]

When the command code read from the time code file 12c3 is judged to be "HL", it shifts to HL processing in drawing 11 (E) (step A6 -> step AF).

[0077]

In this HL processing (the highlight and character count to the i-th character), the directions which carry out highlighting to the i-th character of text data are performed according to parameter data (i) read with the command code HL concerned (step F1).

[0078]

And the directions which count up a character counter to the i-th character are performed (Step F2).

[0079]

When the command code read from the time code file 12c3 is judged to be "LS", it shifts to LS processing in drawing 11 (F) (step A7 -> Step AG).

[0080]

In this LS processing (one-line scrolling and character counter count-up), directions of one-line scrolling to text data on display are performed, and (Step G1) the directions which count up a character counter one time are performed (Step G2).

[0081]

When the command code read from the time code file 12c3 is judged to be "DH", it shifts to DH processing in drawing 11 (G) (step A8 -> Step AH).

[0082]

In this DH processing (i-th HTML file display), the ID number of the HTML number i is read from the file sequence table 12c2 (refer to drawing 3) according to parameter data (i) read with the command code DH concerned (Step H1).

[0083]

And setting out of the image display frame to the indicator of the HTML data which are matched with this ID number and read from the contents data 12c4 (refer to drawing 4) of

contents, or a text display frame is directed (Step H2).

[0084]

When the command code read from the time code file 12c3 is judged to be "DI", it shifts to DI processing in drawing 11 (H) (step A9 -> Step A.I. Artificial Intelligence).

[0085]

In this DI processing (i-th image file display), the ID number of the image number i is read from the file sequence table 12c2 (refer to drawing 3) according to parameter data (i) read with the command code DI concerned (Step I1).

[0086]

And the directions which display the image data which was matched with this ID number, was read from the contents data 12c4 (refer to drawing 4) of contents, and was developed by the image expansion buffer 12e in the image display frame set up by said HTML file are performed (Step I2).

[0087]

When the command code read from the time code file 12c3 is judged to be "PS", it shifts to PS processing in drawing 11 (I) (step A10 -> Step AJ).

[0088]

In this PS processing (i-th sound file play), the ID number of the voice number i is read from the file sequence table 12c2 (refer to drawing 3) according to parameter data (i) read with the command code PS concerned (Step J1).

[0089]

And the directions which output the voice data which was matched with this ID number and read from the contents data 12c4 (refer to drawing 4) of contents from the voice output part 19 are performed (Step J2).

[0090]

When the command code read from the time code file 12c3 is judged to be "CS", it shifts to CS processing in drawing 11 (J) (step A11 -> AK).

[0091]

In this CS processing (clear all file), the directions which clear all the files under output are performed (Step K1).

[0092]

When it is judged that the command code read from the time code file 12c3 is either of the commands of "MI", "SI", "BS", "SS", or others, it shifts to the extended command processing in drawing 12 (step A11 -> AL).

[0093]

Drawing 12 is a flow chart which shows the extended command processing accompanying regeneration according to the regeneration program 12a of said portable device 10.

[0094]

Drawing 13 is a flow chart which shows the contents of processing of each extended command processing accompanying regeneration according to the regeneration program of said portable device 10.

[0095]

When the command code read from the time code file 12c3 is judged to be "MI", it shifts to MI processing in drawing 13 (A) (step L1 -> LM).

[0096]

In this MI processing (it is image file movement to the i-th position), the directions which carry out the moving display of the image file to the i-th position (refer to drawing 6 (A)) on an image display frame are performed according to parameter data (i) read with the command code MI concerned (Step M1).

[0097]

When the command code read from the time code file 12c3 is judged to be "SI", it shifts to SI

processing in drawing 13 (B) (step L2 ->LN).

[0098]

In this SI processing (it is image file expansion to the i-th size), the directions which change the image file on an image display frame into the i-th size (refer to drawing 6 (B)), and display it are performed according to parameter data (i) read with the command code SI concerned (Step N1).

[0099]

When the command code read from the time code file 12c3 is judged to be "BS", it shifts to BS processing in drawing 13 (C) (step L3 ->LO).

[0100]

In this BS processing (sound file volume i), the directions which change the output sound volume of the sound file in the voice output part 19 into i are performed according to parameter data (i) read with the command code BS concerned (Step O1).

[0101]

When the command code read from the time code file 12c3 is judged to be "SS", it shifts to SS processing in drawing 13 (D) (step L4 ->LP gas).

[0102]

In this SS processing (sound file speed i), the directions which change the output speed of the sound file in the voice output part 19 into i are performed according to parameter data (i) read with the command code SS concerned (Step P1).

[0103]

When the command codes read from the time code file 12c3 are judged to be other extended command codes, it shifts to other processings according to the extended command concerned (step L4 ->LQ).

[0104]

Drawing 14 is a figure showing the synchronous reproduction state of an English text, a picture, and a voice file based on the English teaching-materials refresh file in said drawing 2 thru/or drawing 4.

[0105]

This English teaching-materials file (12c) is that by which command processing is performed by that header information (12c1) at every [ by which description setting out was carried out ] batch time (50 ms) (drawing 15;12c1a), First, if the 1st command code "CS" (clear all file) and its parameter data "00" of the time code file 12c3 (refer to drawing 2) are read, The directions which clear the output of all the files are performed (Step K1), and the output of a text, a picture, and a voice file is cleared.

[0106]

If the 2nd command code "DH" (i-th HTML file display) and its parameter data "01" are read, According to the read parameter data (i= 1), ID number =2 of the HTML number 1 is read from the file sequence table 12c2 (refer to drawing 3) with the command code DH concerned (Step H1).

[0107]

And according to the English-conversation text and image frame data of the HTML data which are matched with this ID number =2 and read from the contents data 12c4 (refer to drawing 4) of contents, as shown in drawing 14 (A), The text display frame X and the image display frame Y to the indicator 18 are set up (Step H2).

[0108]

If the 3rd command code "DI" (i-th image file display) and its parameter data "01" are read, According to the read parameter data (i= 1), ID number =6 of the image number 1 is read from the file sequence table 12c2 (refer to drawing 3) with the command code DI concerned (Step I1).

[0109]

And the image data (picture A) which was matched with this ID number =6, was read from the contents data 12c4 (refer to drawing 4) of contents, and was developed by the image expansion buffer 12e is displayed in the image display frame Y set up by said HTML file (Step I2).

[0110]

If the 4th command code "PS" (i-th sound file play) and its parameter data "01" are read, According to the read parameter data (i= 1), ID number =31 of the voice number 1 is read from the file sequence table 12c2 (refer to drawing 3) with the command code PS concerned (Step J1).

[0111]

And English-conversation voice data 1 which was matched with this ID number =31 and read from the contents data 12c4 (refer to drawing 4) of contents It is outputted from \*\*\*\*\* 19 (Step J2).

[0112]

If the 5th command code "LT" (i-th text load) and its parameter data "01" are read, According to the read parameter data (i= 1), ID number =20 of the text number 1 is read from the file sequence table 12c2 (refer to drawing 3) with the command code LT concerned (Step B1).

[0113]

And the English-conversation text data 1 which was matched with this ID number =20 and read from the contents data 12c4 (refer to drawing 4) of contents It is loaded to the work area of \*\* RAM12C (step B-2).

[0114]

If the 6th command code "VD" (i-th text sentence paragraph display) and its parameter data "00" are read, According to the parameter data (i= 0) read with the command code VD concerned, The ID number of the file sequence table 12c2 (refer to drawing 3) to the text number 0 = the English-conversation text data 1 by which the clause of the English-conversation title character which 19 were read, was matched with this and specified by the contents data 12c4 (refer to drawing 4) of contents was loaded to said RAM12C It is called out of \*\* and displayed in the text display frame X on a display screen (Step C1).

[0115]

If the 7th command code "BL" (character counter reset and i-th clause block specification) and its parameter data "00" are read, The character counter of an English-conversation clause on display is reset with said text display frame X, and the 0th block is specified (Step D1, D2).

[0116]

If the 8th command code "HL" (the highlight and character count to the i-th character) and its parameter data "04" are read, According to the read parameter data (i= 4), highlighting (highlighting) is carried out to the 4th character of text data with the command code HL concerned (step F1).

[0117]

And a character counter counts up to the 4th character (Step F2).

[0118]

If the 9th command code "NP" is read, the present picture, the synchronous display screen of English-conversation text data, and the synchronous output state of English-conversation voice data will be maintained.

[0119]

Thus, according to time code file 12c3 (refer to drawing 2), file sequence table 12c2 (refer to drawing 3), and the contents data 12c4 (refer to drawing 5) of contents in said English-conversation teaching-materials refresh file (12c), the batch time (25 ms) beforehand set as the refresh file concerned -- each time -- by performing command processing. Drawing 14 (A) As shown in - (D), English-conversation text data is displayed in the text display frame X on a

display screen, and. The synchronous display of the correspondence image data is carried out into the image display frame Y, the synchronous output of the English-conversation voice data which reads out an English-conversation text on display from the voice output part 19 is carried out further, and a synchronous highlight (emphasis) indication of the read-aloud clause of the English-conversation text concerned comes to be given one by one for every character.

[0120]

CPU11 of the portable device 10 only directs the various command processings according to the command code concerned and its parameter data by this for every unit time of the command processing beforehand described by the refresh file 12b (12c), Synchronous reproduction processing of an English-conversation text file, an English-conversation graphics file, and an English-conversation voice file can be performed.

[0121]

Next, regeneration of a musical piece file as shown by following drawing 15 thru/or drawing 18 is explained as synchronous reproduction processing of two or more of the same kind file as said embodiment.

[0122]

Drawing 15 is a figure showing the time code file 12c3 which constitutes the file 12b (12c) for musical piece reproduction stored in the memory 12 of said portable device 10.

[0123]

Drawing 16 is a figure showing the file sequence table 12c2 which constitutes the file 12b (12c) for musical piece reproduction stored in the memory 12 of said portable device 10.

[0124]

Drawing 17 is a figure showing the contents data 12c4 of contents which constitutes the file 12b (12c) for musical piece reproduction stored in the memory 12 of said portable device 10.

[0125]

Drawing 18 is a figure showing the synchronous reproduction state of a musical piece text, a picture, and a voice file based on the file for musical piece reproduction in said drawing 15 thru/or drawing 17.

[0126]

This file for musical piece reproduction (12c) is that by which command processing is performed by that header information (12c1) at every [ by which description setting out was carried out ] batch time (50 ms) (12c1a), First, if the 1st command code "CS" (clear all file) and its parameter data "00" of the time code file 12c3 (refer to drawing 15) are read, The directions which clear the output of all the files are performed (Step K1), and the output of a text, a picture, and a voice file is cleared.

[0127]

If the 2nd command code "DH" (i-th HTML file display) and its parameter data "01" are read, According to the read parameter data (i= 1), ID number =2 of the HTML number 1 is read from the file sequence table 12c2 (refer to drawing 16) with the command code DH concerned (Step H1).

[0128]

And according to standard text frame data and music image frame data of HTML data which are matched with this ID number =2 and read from the contents data 12c4 (refer to drawing 17) of contents, as shown in drawing 18 (A), The text display frame X and the image display frame Y to the indicator 18 are set up (Step H2).

[0129]

If the 3rd command code "PS" (i-th sound file play) and its parameter data "01" are read, According to the read parameter data (i= 1), ID number =31 of the voice number 1 is read from the file sequence table 12c2 (refer to drawing 16) with the command code PS concerned (Step J1).

[0130]

And music voice data 1 which was matched with this ID number =31 and read from the contents data 12c4 (refer to drawing 17) of contents It is outputted from \*\*\*\*\* 19 (Step J2). The output sound volume in this case is set up as the default value i= 5.

[0131]

If the 4th command code "LT" (i-th text load) and its parameter data "01" are read, According to the read parameter data (i= 1), ID number =20 of the text number 1 is read from the file sequence table 12c2 (refer to drawing 16) with the command code LT concerned (Step B1).

[0132]

And music lyrics data 1 which was matched with this ID number =20 and read from the contents data 12c4 (refer to drawing 17) of contents It is loaded to the work area of \*\* RAM12C (step B-2).

[0133]

Music lyrics data 1 loaded to said RAM12C according to the parameter data (i= 6) read with the command code VD concerned when the 5th command code "VD" (i-th text sentence paragraph display) and its parameter data "06" were read The 6th clause out of a \*\* text is called, and it is displayed in the text display frame X on a display screen (Step C1).

[0134]

If the 6th command code "DI" (i-th image file display) and its parameter data "01" are read, According to the read parameter data (i= 1), ID number =6 of the image number 1 is read from the file sequence table 12c2 (refer to drawing 16) with the command code DI concerned (Step I1).

[0135]

And the image data (picture A) which was matched with this ID number =6, was read from the contents data 12c4 (refer to drawing 17) of contents, and was developed by the image expansion buffer 12e is displayed in the image display frame Y set up by said HTML file (Step I2). The display position in this case is set up as the default position i= 5 (center).

[0136]

When the 7th command code "LS" (one-line scrolling and character counter count-up) and its parameter data "00" are read, it is text data (music lyrics data 1) on display. It is scrolled by one line, and is displayed, and (Step G1) a character counter counts up one time (Step G2).

[0137]

If the 8th command code "NP" is read, the present picture, the synchronous display screen of music words text data, and the synchronous output state of music voice data will be maintained.

[0138]

When the 81st command code "LS" (one-line scrolling and character counter count-up) and its parameter data "00" are read after this, as drawing 18 (B) shows, it is text data (music lyrics data 1) on display. It is scrolled by one more line, and is displayed, and (Step G1) a character counter counts up one time (Step G2).

[0139]

And if the 82nd command code "MI" (it is image file movement to the i-th position) and its parameter data "01" are read, According to the read parameter data (i= 1), the moving display of the image file (picture A) is carried out to the 1st position (upper left: refer to drawing 6 (A)) on the image display frame Y with the command code MI concerned (Step M1).

[0140]

And a sound file [ in / according to the parameter data (i= 7) read with the command code BS concerned when the 83rd command code "BS" (sound file volume i) and its parameter data "07" were read / the voice output part 19 ] (music voice data 1) Output sound volume is changed into "7" (Step O1).

[0141]

When the 161st command code "LS" (one-line scrolling and character counter count-up) and



its parameter data "00" are furthermore read after this, as drawing 18 (C) shows, it is text data (music lyrics data 1) on display. It is scrolled by one more line, and is displayed, and (Step G1) a character counter counts up one time (Step G2).

[0142]

And if the 162nd command code "MI" (it is image file movement to the i-th position) and its parameter data "09" are read, According to the read parameter data ( $i=9$ ), the moving display of the image file (picture A) is carried out to the 9th position (lower right: refer to drawing 6 (A)) on the image display frame Y with the command code MI concerned (Step M1).

[0143]

And a sound file [ in / according to the parameter data ( $i=5$ ) read with the command code BS concerned when the 163rd command code "BS" (sound file volume i) and its parameter data "05" were read / the voice output part 19 ] (music voice data 1) Output sound volume is changed into "5" (Step O1).

[0144]

When the 241st command code "LS" (one-line scrolling and character counter count-up) and its parameter data "00" are furthermore read after this, as drawing 18 (D) shows, it is text data (music lyrics data 1) on display. It is scrolled by one more line, and is displayed, and (Step G1) a character counter counts up one time (Step G2).

[0145]

And if the 242nd command code "SI" (it is image file expansion to the i-th size) and its parameter data "03" are read, According to the read parameter data ( $i=3$ ), the image file (picture A) on an image display frame is changed and displayed on the 3rd size (vertical maximum size: refer to drawing 6 (B)) with the command code SI concerned (Step N1).

[0146]

And a sound file [ in / according to the parameter data ( $i=8$ ) read with the command code BS concerned when the 243rd command code "BS" (sound file volume i) and its parameter data "08" were read / the voice output part 19 ] (music voice data 1) Output sound volume is changed into "8" (Step O1).

[0147]

Thus, according to time code file 12c3 (refer to drawing 15), file sequence table 12c2 (refer to drawing 16), and the contents data 12c4 (refer to drawing 17) of contents in said musical piece refresh file (12c), the batch time (50 ms) beforehand set as the refresh file concerned -- each time -- by performing command processing. Drawing 18 (A) As shown in - (D), music words text data is displayed in the text display frame X on a display screen, and. The synchronous display of the correspondence image data is carried out into the image display frame Y, further, the synchronous output of the musical piece voice data of a music words text on display is carried out from the voice output part 19, and synchronous control of the position and size change of a graphics file, the output-sound-volume change of a voice file, etc. comes to be carried out one by one.

[0148]

CPU11 of the portable device 10 by this to the refresh file 12b (12c). Synchronous reproduction processing of a musical piece text file, a musical piece graphics file, and a musical piece voice file can be performed only by directing the various command processings according to the command code concerned and its parameter data one by one for every unit time of the command processing described beforehand. Therefore, the burden of the main process of CPU becomes light and synchronous reproduction processing which contains a text picture sound easily also by comparatively small CPU of throughput can be performed.

[0149]

Although it had composition which performs the clause highlight (emphasis) display doubled with the output of the voice file in the display of the text file in synchronous reproduction processing of the text file, graphics file, voice file, etc. in said each embodiment, As shown in

following drawing 19, it is good also as composition which performs the text change display doubled with the recovery status of a file by a character color change display, a character size change display and a character transparent display, font change display, etc.

[0150]

Although it had composition which performs a doubling [ with the recovery status of each file ] repositioning display, and a size-change display in the display of the graphics file in synchronous reproduction processing of the text file, graphics file, voice file, etc. in said each embodiment, It is good also as composition which performs the exchange display of the graphics file doubled with the recovery status concerned.

[0151]

As shown in drawing 19, it is good also as composition which replaces an HTML file according to the recovery status of a file.

[0152]

Drawing 19 is a figure showing the various change reproduction states doubled with the recovery status of the file accompanying file regeneration of said portable device 10.

[0153]

Namely, in [ as shown for example in drawing 19 (A) ] the text display frame X1 of HTML file 1, Further in [ to compensate for the voice file output of vocabulary special training ] the text display frame X2 in color-change display M Carrying out by carrying out blue specification of the text data \*\*\*\*, It is good also as composition which synchronizes by the appearance display N, a font change display, etc. in a transparent character, and shows the display of the semantic content of the language corresponding to the portion of said color change display M.

[0154]

As shown in drawing 19 (B), said each display frame X1 and X2 are good also as composition which replaces an HTML file according to the reproduction procedure situation of a file.

[0155]

Therefore, according to the file regenerative function by the portable device 10 of said composition. According to the regeneration program 12a beforehand memorized by ROM12A, To the file 12b (12c) for reproduction at every [ of the command processing by which setting-out description is carried out beforehand ] unit time (25 ms/50ms). Only by reading the command code arranged by the time code file 12c3 and its parameter data, and directing the processing corresponding to the command, Since synchronous reproduction processing of the text, picture, voice file, etc. according to each command described by the time code file 12c3 concerned is performed, load of CPU11 can be made very small and synchronous reproduction of various files can be performed.

[0156]

According to the file regenerative function by the portable device 10 of said composition, not only in mere synchronous reproduction processing of a text, a picture, a voice file, etc., Since it had composition performed combining the reproduction effect of various files, such as highlighting and the scroll display of a text, a repositioning display of a picture, and a size-change display, in connection with this file recovery status, more effective synchronous reproduction of various files can be performed.

[0157]

According to the file regenerative function by the portable device 10 of said composition. When the command of a graphics file display is after the present command processing position according to the time code file 12c3 of the file 12c for reproduction, Since it had composition which predicts the graphics file and is developed, the appointed graphics file can be promptly displayed with processing at the actual image display time.

[0158]

The technique of each processing by the portable device 10 indicated in said embodiment,

Namely, the file prediction processing by which parallel starting is carried out with the file regeneration shown in the flow chart of drawing 8, and said file regeneration shown in the flow chart of drawing 9, Other command processings accompanying said file regeneration shown in the flow chart of drawing 10, Processing of each of other command processing accompanying said file regeneration shown in the flow chart of drawing 11, The extended command processing accompanying said file regeneration shown in the flow chart of drawing 12, Each technique, such as processing etc. of each extended command processing accompanying said file regeneration shown in the flow chart of drawing 13, as the program which all can make a computer execute -- a memory card (a ROM card.) A RAM card etc. can be stored in the external recording media 13, such as magnetic disks (a floppy disk, a hard disk, etc.), optical discs (CD-ROM, DVD, etc.), and semiconductor memory, and can be distributed. And various computer terminals provided with the communication function with communication network (Internet) N, By reading into the memory 12 the program memorized by this external recording medium 13 by the recording-medium reading section 14, and controlling operation by this read program, The multi-file synchronous reproduction function in which it explained in said embodiment can be realized, and same processing by the technique mentioned above can be performed.

[0159]

The data of the program for realizing said each technique, A communication network (Internet) N top can be made to transmit as a gestalt of a program code, The aforementioned program data can be incorporated from the computer terminal connected to this communication network (Internet) N, and the multi-file synchronous reproduction function mentioned above can also be realized.

[0160]

the invention in this application is not limited to said each embodiment, and in the range which does not deviate from the gist, many things are boiled and it can be changed at an execution phase The invention of various stages is included in said each embodiment, and various inventions may be extracted by the proper combination in two or more constituent features indicated. For example, even if some constituent features are deleted from all the constituent features shown in each embodiment or some constituent features are put together, SUBJECT described in the column of Object of the Invention is solvable, and when the effect described in the column of the effect of the invention is acquired, the composition which these constituent features were deleted or was put together may be extracted as an invention.

[0161]

[Effect of the Invention]

As mentioned above, according to the regeneration control device (reproduction control processing program) concerning claim 1 (claim 12) of this invention. The reproduction information memory measure which arranges the reproduction instruction of two or more kinds of files one by one, and memorizes it for every base period interval which was able to be defined beforehand, having a file storage means which memorizes two or more kinds of files -- a time check -- based on the time clocked by the means, According to the reproduction instruction of the file memorized for every base period interval beforehand defined by said reproduction information memory measure, regeneration of two or more kinds of files memorized by said file storage means is performed.

[0162]

Synchronous reproduction processing of two or more kinds of files can be easily performed only by this directing regeneration of the reproduction object file memorized by the file storage means one by one for every base period interval according to the reproduction instruction of the file memorized by the reproduction information memory measure.

[0163]

Since it was made to include the reproduction form command which directs the reproduction

form of a file in the reproduction instruction of a file according to the regeneration control device concerning claim 2 of this invention, the reproduction form of each file can be directed easily.

[0164]

According to the regeneration control device concerning claim 3 of this invention, as a reproduction form command of a text file, Since it was made to include the command on which the portion specified with a command among the character strings contained in the text file is displayed by a different display style from the portion of other character strings, the character string of a text can be displayed by a different display style.

[0165]

Since it was made to include the command on which a character color, character size, or a character font is displayed by a different display style from the portion of other character strings as a display style command of a text file according to the regeneration control device concerning claim 4 of this invention, A character color, character size, or a character font can be displayed with an easily different gestalt from other parts for a character string.

[0166]

Since it was made to include the command to which the scroll display of the character string contained in the text file is carried out as a reproduction form command of a text file according to the regeneration control device concerning claim 5 of this invention, the scroll display of the text can be carried out easily.

[0167]

Since it was made to include the change display of the position of the picture included in the graphics file, or the change display command of the size of a picture as a reproduction form command of a graphics file according to the regeneration control device concerning claim 6 of this invention, A graphics file can be repositioning-displayed or size-change displayed easily.

[0168]

Since it was made to include the command which had reproduction of the voice file specified and which carries out a time stop as a reproduction form command of a voice file according to the regeneration control device concerning claim 7 of this invention, the designated time stop of the reproduction of a voice file can be carried out easily.

[0169]

Since base period 1 of two or more kinds of time intervals is defined and set up as a base period interval defined beforehand according to the regeneration control device concerning claim 8 of this invention, a suitable base period interval can be defined and set up from the inside of two or more kinds of base period intervals if needed.

[0170]

In the reproduction instruction of the file which was memorized by the reproduction information memory measure according to the regeneration control device concerning claim 9 of this invention, The file reproduction instruction after the file reproduction instruction of the base period interval corresponding to current time is predicted, and since the reproduction object file memorized by the file storage means is beforehand developed according to this predicted file reproduction instruction, a reproduction object file can be developed beforehand. Thereby, even if the throughput of CPU is small, processing sufficient by developing previously can be performed, for example.

[0171]

Since the reproduction object file corresponding to the ID number memorized by the file ID storage means is read and it was made to reproduce according to the regeneration control device concerning claim 10 of this invention, according to an ID number, a file can be read appropriately and promptly and it can reproduce.

[0172]

Therefore, according to this invention, performing synchronous reproduction of two or more kinds of files by the load of few CPUs can provide the regeneration control device which becomes possible.

[Brief Description of the Drawings]

[Drawing 1]The block diagram showing the composition of the electronic circuit of the portable device 10 concerning the embodiment of the regeneration control device of this invention.

[Drawing 2]The figure showing the time code file 12c3 which constitutes the file 12b (12c) for reproduction stored in the memory 12 of said portable device 10.

[Drawing 3]The figure showing the file sequence table 12c2 which constitutes the file 12b (12c) for reproduction stored in the memory 12 of said portable device 10.

[Drawing 4]The figure showing the contents data 12c4 of contents which constitutes the file 12b (12c) for reproduction stored in the memory 12 of said portable device 10.

[Drawing 5]The figure matching and showing the contents of a command by which analysis processing is carried out based on the command code, its parameter data, and the regeneration program 12a of the various commands described by the time code file 12c3 (refer to drawing 2) of said portable device 10.

[Drawing 6]It is a figure showing the impaction efficiency gestalt and size-change gestalt of an image file accompanying the extended command described by the time code file 12c3 (refer to drawing 2) of said portable device 10, As for the figure (A), the figures (B) are a figure which specifies the movement zone of the image file accompanying extended command MI, and a figure which specifies the change size of the image file accompanying extended command SI.

[Drawing 7]The figure showing the various file stored conditions of the file 12b for encryption reproduction stored in FLASH memory 12B of said portable device 10.

[Drawing 8]The flow chart which shows regeneration according to the regeneration program 12a of said portable device 10.

[Drawing 9]The flow chart which shows the prediction processing by which parallel starting is carried out with regeneration according to the regeneration program 12a of said portable device 10.

[Drawing 10]The flow chart which shows other command processings accompanying regeneration according to the regeneration program 12a of said portable device 10.

[Drawing 11]The flow chart which shows the contents of processing of each of other command processing accompanying regeneration according to the regeneration program 12a of said portable device 10.

[Drawing 12]The flow chart which shows the extended command processing accompanying regeneration according to the regeneration program 12a of said portable device 10.

[Drawing 13]The flow chart which shows the contents of processing of each extended command processing accompanying regeneration according to the regeneration program of said portable device 10.

[Drawing 14]The figure showing the synchronous reproduction state of an English text, a picture, and a voice file based on the English teaching-materials refresh file in said drawing 2 thru/or drawing 4.

[Drawing 15]The figure showing the time code file 12c3 which constitutes the file 12b (12c) for musical piece reproduction stored in the memory 12 of said portable device 10.

[Drawing 16]The figure showing the file sequence table 12c2 which constitutes the file 12b (12c) for musical piece reproduction stored in the memory 12 of said portable device 10.

[Drawing 17]The figure showing the contents data 12c4 of contents which constitutes the file 12b (12c) for musical piece reproduction stored in the memory 12 of said portable device 10.

[Drawing 18]The figure showing the synchronous reproduction state of a musical piece text, a picture, and a voice file based on the file for musical piece reproduction in said drawing 15

thru/or drawing 17.

[Drawing 19]The figure showing the various change reproduction states doubled with the recovery status of the file accompanying file regeneration of said portable device 10.

[Description of Notations]

10 -- Portable device  
11 -- CPU  
12 -- Memory  
12 A--ROM  
12B -- FLASH memory  
12 C--RAM  
12c1 -- Header information  
12c1a -- Batch time  
12c2 -- File sequence table  
12c3 -- Time code file  
12c4 -- The contents data of contents  
12a -- Regeneration program  
12b -- Enciphered file for reproduction (CAS file)  
12c -- Decoded file for reproduction (CAS file)  
12d -- Image expansion finishing flag  
12e -- Image expansion buffer  
13 -- External recording medium  
14 -- Recording-medium reading section  
15 -- Electrical transmission control section  
16 -- Communications department  
17 -- Input part  
18 -- Indicator  
19 -- Voice output part  
20 -- Communication equipment (house PC)  
30 -- Web server  
N -- Communication network (Internet)  
X -- a text display frame  
Y -- Image display frame

## TECHNICAL FIELD

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[Field of the Invention]

This invention relates to the regeneration control device and reproduction control processing program for reproducing files, such as a sound, a picture, and a text.

[0002]

## PRIOR ART

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[Description of the Prior Art]

As art which carries out the concurrency of the files, such as music, a picture, and a text, and is played, conventionally, For example, the addition data area established in each frame concerned is received for every frame of the voice file in which the information compression was carried out by MPEG-3, In the case of karaoke, by embedding the synchronization information of the text file which should be carried out synchronous reproduction to a voice file, or a graphics file, there are some which carry out synchronous reproduction of a karaoke sound, its image picture, and the text of words, for example.

[0003]

## EFFECT OF THE INVENTION

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### [Effect of the Invention]

As mentioned above, according to the regeneration control device (reproduction control processing program) concerning claim 1 (claim 12) of this invention. The reproduction information memory measure which arranges the reproduction instruction of two or more kinds of files one by one, and memorizes it for every base period interval which was able to be defined beforehand, having a file storage means which memorizes two or more kinds of files -- a time check -- based on the time clocked by the means, According to the reproduction instruction of the file memorized for every base period interval beforehand defined by said reproduction information memory measure, regeneration of two or more kinds of files memorized by said file storage means is performed.

### [0162]

Synchronous reproduction processing of two or more kinds of files can be easily performed only by this directing regeneration of the reproduction object file memorized by the file storage means one by one for every base period interval according to the reproduction instruction of the file memorized by the reproduction information memory measure.

### [0163]

Since it was made to include the reproduction form command which directs the reproduction form of a file in the reproduction instruction of a file according to the regeneration control device concerning claim 2 of this invention, the reproduction form of each file can be directed easily.

### [0164]

According to the regeneration control device concerning claim 3 of this invention, as a reproduction form command of a text file, Since it was made to include the command on which the portion specified with a command among the character strings contained in the text file is displayed by a different display style from the portion of other character strings, the character string of a text can be displayed by a different display style.

### [0165]

Since it was made to include the command on which a character color, character size, or a character font is displayed by a different display style from the portion of other character strings as a display style command of a text file according to the regeneration control device concerning claim 4 of this invention, A character color, character size, or a character font can be displayed with an easily different gestalt from other parts for a character string.

### [0166]

Since it was made to include the command to which the scroll display of the character string contained in the text file is carried out as a reproduction form command of a text file according to the regeneration control device concerning claim 5 of this invention, the scroll display of the text can be carried out easily.

### [0167]

Since it was made to include the change display of the position of the picture included in the graphics file, or the change display command of the size of a picture as a reproduction form command of a graphics file according to the regeneration control device concerning claim 6 of this invention, A graphics file can be repositioning-displayed or size-change displayed easily.

### [0168]

Since it was made to include the command which had reproduction of the voice file specified and which carries out a time stop as a reproduction form command of a voice file according to the regeneration control device concerning claim 7 of this invention, the designated time stop of the reproduction of a voice file can be carried out easily.

[0169]

Since base period 1 of two or more kinds of time intervals is defined and set up as a base period interval defined beforehand according to the regeneration control device concerning claim 8 of this invention, a suitable base period interval can be defined and set up from the inside of two or more kinds of base period intervals if needed.

[0170]

In the reproduction instruction of the file which was memorized by the reproduction information memory measure according to the regeneration control device concerning claim 9 of this invention, The file reproduction instruction after the file reproduction instruction of the base period interval corresponding to current time is predicted, and since the reproduction object file memorized by the file storage means is beforehand developed according to this predicted file reproduction instruction, a reproduction object file can be developed beforehand. Thereby, even if the throughput of CPU is small, processing sufficient by developing previously can be performed, for example.

[0171]

Since the reproduction object file corresponding to the ID number memorized by the file ID storage means is read and it was made to reproduce according to the regeneration control device concerning claim 10 of this invention, according to an ID number, a file can be read appropriately and promptly and it can reproduce.

[0172]

Therefore, according to this invention, performing synchronous reproduction of two or more kinds of files by the load of few CPUs can provide the regeneration control device which becomes possible.

## TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Invention]

However, in the synchronous reproduction art of two or more kinds of files using the addition data area of the MPEG file currently performed conventionally in this way. Since the embedding of synchronization information is specified to the addition data area for every frame of a main MP3 voice file, Unless the MP3 voice file concerned is reproduced, synchronization information cannot be taken out, and synchronous reproduction of the file of other kinds cannot be performed centering on reproduction of an MP3 file.

[0004]

For this reason, when the synchronization information of a text file is embedded at an MP3 voice file, for example, there is a problem which cannot reproduce a synchronous object file unless it omits sound reproduction processing continuously as a non-voice file, even if it is in the period which does not reproduce a voice file.

[0005]

Therefore, conventionally, since synchronous reproduction processing of two or more of this kind file is regenerated considering an MP3 file as a base, there is a problem to which the load of the processing in CPU of playback equipment becomes heavy.

[0006]

This invention was made in view of the above problems, and aims to let it provide the regeneration control device and reproduction control processing program which become possible to perform synchronous reproduction of two or more kinds of files by the load of few CPUs.

[0007]

## MEANS

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[Means for Solving the Problem]

That is, a regeneration control device concerning this invention is provided with the following.

A reproduction information memory measure which arranges a reproduction instruction of two or more kinds of files one by one, and memorizes it for every base period interval which was able to be defined beforehand.

A file storage means which memorizes two or more kinds of files.

a time check which clocks time -- a means and this time check -- a reproduction control means which makes two or more kinds of files memorized by said file storage means regenerate according to a reproduction instruction of a file memorized based on time clocked by a means for every base period interval beforehand defined by said reproduction information memory measure.

[0008]

In such a regeneration control device concerning this invention. A reproduction information memory measure which arranges a reproduction instruction of two or more kinds of files one by one, and memorizes it for every base period interval which was able to be defined beforehand, having a file storage means which memorizes two or more kinds of files -- a time check -- based on time clocked by a means, According to a reproduction instruction of a file memorized for every base period interval beforehand defined by said reproduction information memory measure, regeneration of two or more kinds of files memorized by said file storage means is performed.

[0009]

Only by this directing regeneration of a reproduction object file memorized by a file storage means according to a reproduction instruction of a file memorized by a reproduction information memory measure for every base period interval defined beforehand, Synchronous reproduction processing of two or more kinds of files can be performed easily.

[0010]

[Embodiment of the Invention]

Hereafter, an embodiment of the invention is described with reference to drawings.

[0011]

Drawing 1 is a block diagram showing the composition of the electronic circuit of the portable device 10 concerning the embodiment of the regeneration control device of this invention.

[0012]

A program by which this portable device (PDA:personal digital assistants) 10 was recorded on various kinds of recording media, Or the program by which communication transmission was carried out is read, it is constituted by the computer by which operation is controlled by the read program, and the electronic circuit is equipped with CPU(central processing unit) 11.

[0013]

A PDA control program with which CPU11 was beforehand memorized by ROM12A in the memory 12, Or a PDA control program read into said memory 12 from the external recording media 13, such as a ROM card, via the recording-medium reading section 14, Or it is what controls operation of each part of a circuit according to the PDA control program read into said memory 12 from other computer terminals (30) on communication network N, such as the Internet, via the electrical transmission control section 15, The PDA control program memorized by said memory 12, The input signal according to the user's operation from the input part 17 which consists of a key or a touch panel, Or the signal transmission from other computer terminals (30) on communication network N received by the electrical transmission control section 15, Or it is started according to the signal transmission from the communication equipment (PC:personal computer) 20 of the exterior received via the communications department 16 by the short-distance-radio connection by Bluetooth (R), or

wired connection.

[0014]

The indicator 18 which said memory 12, the recording-medium reading section 14, the electrical transmission control section 15, the communications department 16, and the input part 17 are connected, and also consists of LCD, the voice output part 19 which is provided with a loudspeaker and outputs a sound, etc. are connected to said CPU11.

[0015]

The timer of business is built in CPU11 at the time of a processing hour meter.

[0016]

The memory 12 of this portable device 10 is provided with ROM12A, FLASH memory (EEP-ROM) 12B, and RAM12C, and is constituted.

[0017]

A net communications program for carrying out data communications to each computer terminal (30) on communication network N at ROM12A via the system program and the electrical transmission control section 15 which manage operation of the whole portable device 10 concerned, The external instrument communications program for carrying out data communications to the external communication equipment (PC) 20 via the communications department 16 is memorized, and also. Various PDA control programs, such as the regeneration program 12a for carrying out synchronous reproduction of various kinds of files, such as a schedule management program, an address administration program, and a voice text, a picture, are memorized.

[0018]

In FLASH memory (EEP-ROM) 12B. The enciphered file 12b for reproduction (CAS file) which is the target of regeneration based on said regeneration program 12a is memorized, and also. A user's schedule, an address of a friend and an acquaintance, etc. which are managed based on said schedule management program or an address administration program are memorized.

[0019]

Here, the file 12b for encryption reproduction memorized in said FLASH memory (EEP-ROM) 12B is a file for the synchronous reproduction of a text, a sound, and a picture to perform practice and karaoke of English conversation, for example, and is compressed and enciphered by the predetermined algorithm.

[0020]

This file 12b for encryption reproduction is that by which is recorded and distributed, for example to CD-ROM, or distribution distribution is carried out from the file distributing server 30 on communication network (Internet) N, The file 12b for encryption reproduction distributed by said CD-ROM or the net server (30), For example, after being read into the communication equipment (PC) 20 as a user house PC, transmission storing is carried out via the communications department 16 of the portable device (PDA) 10 at FLASH memory (EEP-ROM) 12B.

[0021]

The decoded file 12c for reproduction (CAS file) which elongated and decrypted said enciphered file 12b for reproduction is memorized by RAM12C, and it is equipped with the image expansion buffer 12e which the graphics file in this decipherment refresh file 12c is developed, and is memorized. The decoded CAS file 12c comprises header information (12c1) which memorizes the batch time (12c1a) of a reproduction instruction and a file sequence table (12c2) mentioned later, a time code file (12c3), and contents data of contents (12c4). And the image expansion finishing flag 12d which shows the image number in which each graphics file developed and memorized has been developed to this image expansion buffer 12e is memorized by RAM12C.

[0022]

A work area is prepared for RAM12C in order to store temporarily various data outputted and inputted by CPU11 according to various kinds of processings in addition to this.

[0023]

Drawing 2 is a figure showing the time code file 12c3 which constitutes the file 12b (12c) for reproduction stored in the memory 12 of said portable device 10.

[0024]

Drawing 3 is a figure showing the file sequence table 12c2 which constitutes the file 12b (12c) for reproduction stored in the memory 12 of said portable device 10.

[0025]

Drawing 4 is a figure showing the contents data 12c4 of contents which constitutes the file 12b (12c) for reproduction stored in the memory 12 of said portable device 10.

[0026]

The file 12b (12c) for reproduction used as the reproduction object file of this portable device 10 is constituted by the combination of the time code file 12c3, the file sequence table 12c2, and the contents data 12c4 of contents as drawing 2 - drawing 4 show.

[0027]

In the time code file 12c3 shown by drawing 2. The time code for performing command processing of various file synchronous reproduction with the certain time interval (for example, 25 ms) beforehand set up for each file of every is that by which description arrangement is carried out. Each of this time code is constituted by combination with the parameter data which consists of the reference number and specification numerical value of the file sequence table 12c2 (drawing 3) for matching the file content (refer to drawing 4) in connection with the command concerned with the command code which directs a command.

[0028]

Description setting out of the certain time interval for performing command processing one by one according to this time code is carried out as batch time 12c1a at the header information 12c1 of the time code file 12c3 concerned.

[0029]

The file sequence table 12c2 shown by drawing 3, It is the table which matched the parameter data of each command described by said time code file 12c3 (refer to drawing 2), and the storage location (ID) number of the actual file content for every several kinds of two or more kinds of files (HTML / picture / text / sound).

[0030]

File data, such as a actual sound matched with said each command code with said file sequence table 12c2 (refer to drawing 3), a picture, and a text, match each of the ID number, and the contents data 12c4 of contents shown by drawing 4 is memorized.

[0031]

Drawing 5 is a figure matching and showing the contents of a command by which analysis processing is carried out based on the command code, its parameter data, and the regeneration program 12a of the various commands described by the time code file 12c3 (refer to drawing 2) of said portable device 10.

[0032]

As a command used for the time code file 12c3, There are a standard command and an extended command and to a standard command. LT(i-th text load).VD(i-th text sentence paragraph display).BL(character counter reset and i-th clause block specification).HN(highlight-less - character counter count-up).HL (to the i-th character.) A highlight and character count .LS. (One-line scrolling and character counter count-up) .DH. (i-th HTML file display) There is each command of .DI(i-th image file display).PS(i-th sound file play).CS(clear all file).PP(stop during basic time i seconds).FN(end of processing).NP (invalid), and to an extended command. There is each command of MI(it is image file movement to i-th position).SI(it is image file expansion to i-th size).BS(sound file volume

i).SS (sound file speed i).

[0033]

Drawing 6 is a figure showing the impaction efficiency gestalt and size-change gestalt of an image file accompanying the extended command described by the time code file 12c3 (refer to drawing 2) of said portable device 10, The figure which specifies the movement zone of the image file accompanying extended command MI in the figure (A), and the figure (B) are figures which specify the change size of the image file accompanying extended command SI.

[0034]

For example, when it is parameter data (i= 1) of extended command MI, the moving display of the image file is carried out to the upper left of image display area, and when it is parameter data (i= 9), a moving display is carried out to the lower right.

[0035]

When it is parameter data (i= 1) of extended command SI, for example, an image file is displayed with standard size, when it is parameter data (i= 2), it is 2 double sizes, and when it is (i= 3), it is indicated by size change with 3 double sizes.

[0036]

Namely, the regeneration program 12a memorized by ROM12A of this portable device (PDA) 10 is started, The file 12c for decipherment reproduction which was decoded from FLASH memory 12B and memorized by RAM12c, For example, when it is the file content shown by drawing 2 thru/or drawing 4 and the 3rd command code "DI" and parameter data "01" are read in connection with the command processing for every fixed time, Since this command "DI" is the i-th image file display command, According to ID number =6 of eclipse \*\*\*\*\* with a link, the picture A of the contents data 12c4 (refer to drawing 4) of contents is read and displayed on the file sequence table 12c2 (refer to drawing 3) from the parameter data i= 01.

[0037]

When the 6th command code "VD" and parameter data "00" are read, for example in connection with the command processing for every time constant [ same ], Since this command "VD" is the i-th text sentence paragraph display command, the 0th clause of a text is displayed according to the parameter data i= 00.

[0038]

Since this command "NP" is an invalid command when the 9th command code "NP" and parameter data "00" are read, for example in connection with the command processing for every time constant [ same ], the present file output state is maintained.

[0039]

The after-mentioned explains anew the detailed reproduction motion about the file 12b (12c) for reproduction of the file content shown by this drawing 2 thru/or drawing 4.

[0040]

Drawing 7 is a figure showing the various file stored conditions of the file 12b for encryption reproduction stored in FLASH memory 12B of said portable device 10.

[0041]

In the file 12b for encryption reproduction, an HTML file, an Image (picture) file, They are collectively stored by various kinds of files of a Text (text) file and a Sound (sound) file, It is stored and outputted to RAM12C as the file 12c for reproduction which this file 12b for encryption reproduction was elongated and decrypted, and was decoded, According to reading and command analysis of the time code file 12c3 (refer to drawing 2) by said regeneration program 12a, synchronous reproduction processing of the various files concerned is performed.

[0042]

And this file 12b for encryption reproduction, Synchronous reproduction processing of still more various files can also be performed with parallel combination with the 2nd file 12b2 (h [

12b2 ], 12b2i, t [ 12b2 ], 12b2 s) belonging to the 1st file 12b1 (h [ 12b1 ], 12b1i, t [ 12b1 ], 12b1 s).

[0043]

Next, the file regenerative function by the portable device 10 of said composition is explained.

[0044]

Drawing 8 is a flow chart which shows regeneration according to the regeneration program 12a of said portable device 10.

[0045]

For example, the karaoke file etc. which the English teaching-materials refresh file which English study can perform by the sound, the text, and a picture, and karaoke can perform by the sound, the text, and a picture, It incorporates into the communication equipment (PC) 20 which is house PC from CD-ROM or the server 30 on communication network (Internet) N, In the state where the file 12b for reproduction concerned (CAS file) was stored in FLASH memory 12B via the communications department 16 of the portable device (PDA) 10, If reproduction of this file 12b for reproduction is directed by operation of the input part 17, initializing processes, such as clear processing, flag reset processing, etc. of each work area in RAM12C, will be performed (Step S1).

[0046]

And the file 12b for reproduction (CAS file) stored in said FLASH memory 12B is read (Step S2), and it is judged whether the file 12b for reproduction concerned (CAS file) is an enciphered file (Step S3).

[0047]

Here, when it is judged that it is the enciphered file 12b for reproduction (CAS file), decipherment decryption is carried out (step S3 ->S4), and the CAS file 12b concerned is transmitted and stored in RAM12C (Step S5).

[0048]

Then, batch time 12c1a (for example, 25 ms/50ms/--) described by the header information 12c1 of the decoded file 12c for reproduction (CAS file) stored in this RAM12C, It is set up as reading time of the certain time interval of the file 12c for decoded reproduction concerned by CPU11 (CAS file) (Step S6).

[0049]

And a read pointer is set to the head of the file 12c for decoded reproduction (CAS file) stored in RAM12C (Step S7), and the timer for clocking the regeneration timing of the file 12c for reproduction concerned starts (Step S8).

[0050]

Here, the prediction processing in drawing 9 is started in parallel to the regeneration concerned (step S9). About this prediction processing, the after-mentioned explains that detailed processing.

[0051]

In said step S8, if a processing timer starts, for every batch time according to this reproduction object file 12c set up at said step S6. The command code and its parameter data of the time code file 12c3 (refer to drawing 2) which constitutes the file 12c for reproduction concerned of the position of the read pointer set up at said step S7 are read (Step S10).

[0052]

And the command code read from the time code file 12c3 (refer to drawing 2) in said file 12c for reproduction, When it is judged whether it is "FN" (Step S11) and it is judged as "FN", directions execution of the stop processing of the file regeneration concerned is carried out at the time (step S11->S12).

[0053]

On the other hand, when the command code read from the time code file 12c3 (refer to

drawing 2) in said file 12c for reproduction is judged not to be "FN", When it is judged whether the command code concerned is "PP" (step S11->S13) and it is judged as "PP", directions execution of the temporary stop process (processing timer stop) of the file regeneration concerned is carried out at the time (step S13->S14). As for this stop processing, according to a user's manual operation, stop for i seconds and stop release are performed.

[0054]

a time check according to a processing timer again when it succeeds in the input of halt release here based on the user's operation in the input part 17 -- a time check operation is started and according to the timer concerned -- it is judged whether time reached the following batch time 12c1a (step S15->S16).

[0055]

On the other hand, in said step S13, when the command code read from the time code file 12c3 (refer to drawing 2) in said file 12c for reproduction is judged not to be "PP", it shifts to other command processings in drawing 10 (step SA). About other command processings, the after-mentioned explains the detailed processing.

[0056]

and a time check according [ on Step S16 and ] to said timer, when time is judged to have reached the following batch time 12c1a, The upgrade set of the read pointer to the file 12c for decoded reproduction (CAS file) stored in RAM12C is carried out to the position of the following (step S16->S17), The processing from the command code and its parameter data read of the time code file 12c3 (refer to drawing 2) of the read pointer concerned in said step S10 is repeated (step S17->S10-S16). [ of a position ]

[0057]

Namely, according to the regeneration program CPU11 of the portable device 10 was remembered to be by ROM12A, To the file 12b (12c) for reproduction for every unit time of the command processing by which setting-out description is carried out beforehand. Only by reading the command code arranged by the time code file 12c3 (refer to drawing 2) and its parameter data, and directing the processing corresponding to the command, Synchronous reproduction processing of the various files according to each command described by the time code file 12c3 concerned is performed.

[0058]

Drawing 9 is a flow chart which shows the prediction processing by which parallel starting is carried out with regeneration according to the regeneration program 12a of said portable device 10.

[0059]

If parallel starting of this prediction processing is carried out with regeneration of said file 12c for reproduction, The current position of the read pointer to the time code file 12c3 (refer to drawing 2) of the file 12c for decoded reproduction (CAS file) stored in RAM12C is checked (Step R1), The command code "DI" (graphics file display command) after this present pointer position is searched (Step R2).

[0060]

When the "DI" command is searched after the set location of the present read pointer in said time code file 12c3 (refer to drawing 2), and the (step R3), The graphics file of the picture ID number specified based on the parameter data of the concerned "DI" command, It is judged based on the existence of the image expansion finishing flag 12d of an image corresponding ID number whether it is set as whether it is deployment settled and the state in which a display output is possible promptly that is, to the image expansion buffer 12e (Step R4).

[0061]

And command code is carried out after the position of the present read pointer in the time code file 12c3 (refer to drawing 2), The graphics file of the picture ID number which the "DI" command is searched and is moreover specified based on the parameter data of the concerned

"DI" command, When it is judged to the image expansion buffer 12e that it is not ending with deployment, the graphics file of the picture ID number of this specification is read from the contents data 12c4 (refer to drawing 4) of contents, and is beforehand developed to the image expansion buffer 12e (step R3->R4->R5).

[0062]

That is, when the "DI" command of a graphics file display is after the command processing of the position of the present read pointer according to the time code file 12c3 (refer to drawing 2) of the file 12c for reproduction, beforehand -- the "DI" concerned -- not being late for processing by predicting the graphics file directed with the parameter data of a command, and developing, when said read pointer actually moves to the position of the next "DI" command - the appointed graphics file -- promptly -- output displaying -- \*\* -- it becomes like.

[0063]

Drawing 10 is a flow chart which shows other command processings accompanying regeneration according to the regeneration program 12a of said portable device 10.

[0064]

Drawing 11 is a flow chart which shows the contents of processing of each of other command processing accompanying regeneration according to the regeneration program 12a of said portable device 10.

[0065]

When the command code read from the time code file 12c3 (refer to drawing 2) according to the read pointer in said file 12c for reproduction is judged to be "NP" in other command processings, Invalid processing is specified and the present file output state is maintained as it is (step A1 ->END (S16)).

[0066]

When the command code read from the time code file 12c3 is judged to be "LT", it shifts to LT processing in drawing 11 (A) (step A2 ->AB).

[0067]

In this LT processing (i-th text load). The ID number of this text number i is read from the sequence file table (refer to drawing 3) of the decoded file 12c for reproduction by making into the text number i the parameter data read with the command code LT concerned (Step B1).

[0068]

And loading over the work area of RAM12C of the text data which is matched with this ID number and read from the contents data 12c4 (refer to drawing 4) of contents is directed (step B-2).

[0069]

When the command code read from the time code file 12c3 is judged to be "VD", it shifts to VD processing in drawing 11 (B) (step A3->AC).

[0070]

In this VD processing (i-th text sentence paragraph display), the directions which display the i-th text data loaded to the work area of said RAM12C in the text frame set up by the HTML file are performed (Step C1).

[0071]

When the command code read from the time code file 12c3 is judged to be "BL", it shifts to BL processing in drawing 11 (C) (step A4->AD).

[0072]

In this BL processing (character counter reset and i-th clause block specification), the character counter to the text data first loaded to the work area of said RAM12C is reset (Step D1).

[0073]

And according to read parameter data (i), the i-th clause block of text data is specified with

the command code BL concerned (Step D2).

[0074]

When the command code read from the time code file 12c3 is judged to be "HN", it shifts to HN processing in drawing 11 (D) (step A5->AE).

[0075]

In this HN processing (highlight-less - character counter count-up), the directions which count up the character counter to text data one time are performed (Step E1).

[0076]

When the command code read from the time code file 12c3 is judged to be "HL", it shifts to HL processing in drawing 11 (E) (step A6 -> step AF).

[0077]

In this HL processing (the highlight and character count to the i-th character), the directions which carry out highlighting to the i-th character of text data are performed according to parameter data (i) read with the command code HL concerned (step F1).

[0078]

And the directions which count up a character counter to the i-th character are performed (Step F2).

[0079]

When the command code read from the time code file 12c3 is judged to be "LS", it shifts to LS processing in drawing 11 (F) (step A7 -> Step AG).

[0080]

In this LS processing (one-line scrolling and character counter count-up), directions of one-line scrolling to text data on display are performed, and (Step G1) the directions which count up a character counter one time are performed (Step G2).

[0081]

When the command code read from the time code file 12c3 is judged to be "DH", it shifts to DH processing in drawing 11 (G) (step A8 -> Step AH).

[0082]

In this DH processing (i-th HTML file display), the ID number of the HTML number i is read from the file sequence table 12c2 (refer to drawing 3) according to parameter data (i) read with the command code DH concerned (Step H1).

[0083]

And setting out of the image display frame to the indicator of the HTML data which are matched with this ID number and read from the contents data 12c4 (refer to drawing 4) of contents, or a text display frame is directed (Step H2).

[0084]

When the command code read from the time code file 12c3 is judged to be "DI", it shifts to DI processing in drawing 11 (H) (step A9 -> Step A.I. Artificial Intelligence).

[0085]

In this DI processing (i-th image file display), the ID number of the image number i is read from the file sequence table 12c2 (refer to drawing 3) according to parameter data (i) read with the command code DI concerned (Step I1).

[0086]

And the directions which display the image data which was matched with this ID number, was read from the contents data 12c4 (refer to drawing 4) of contents, and was developed by the image expansion buffer 12e in the image display frame set up by said HTML file are performed (Step I2).

[0087]

When the command code read from the time code file 12c3 is judged to be "PS", it shifts to PS processing in drawing 11 (I) (step A10 -> Step AJ).

[0088]



In this PS processing (i-th sound file play), the ID number of the voice number i is read from the file sequence table 12c2 (refer to drawing 3) according to parameter data (i) read with the command code PS concerned (Step J1).

[0089]

And the directions which output the voice data which was matched with this ID number and read from the contents data 12c4 (refer to drawing 4) of contents from the voice output part 19 are performed (Step J2).

[0090]

When the command code read from the time code file 12c3 is judged to be "CS", it shifts to CS processing in drawing 11 (J) (step A11 ->AK).

[0091]

In this CS processing (clear all file), the directions which clear all the files under output are performed (Step K1).

[0092]

When it is judged that the command code read from the time code file 12c3 is either of the commands of "MI", "SI", "BS", "SS", or others, it shifts to the extended command processing in drawing 12 (step A11 ->AL).

[0093]

Drawing 12 is a flow chart which shows the extended command processing accompanying regeneration according to the regeneration program 12a of said portable device 10.

[0094]

Drawing 13 is a flow chart which shows the contents of processing of each extended command processing accompanying regeneration according to the regeneration program of said portable device 10.

[0095]

When the command code read from the time code file 12c3 is judged to be "MI", it shifts to MI processing in drawing 13 (A) (step L1 ->LM).

[0096]

In this MI processing (it is image file movement to the i-th position), the directions which carry out the moving display of the image file to the i-th position (refer to drawing 6 (A)) on an image display frame are performed according to parameter data (i) read with the command code MI concerned (Step M1).

[0097]

When the command code read from the time code file 12c3 is judged to be "SI", it shifts to SI processing in drawing 13 (B) (step L2 ->LN).

[0098]

In this SI processing (it is image file expansion to the i-th size), the directions which change the image file on an image display frame into the i-th size (refer to drawing 6 (B)), and display it are performed according to parameter data (i) read with the command code SI concerned (Step N1).

[0099]

When the command code read from the time code file 12c3 is judged to be "BS", it shifts to BS processing in drawing 13 (C) (step L3 ->LO).

[0100]

In this BS processing (sound file volume i), the directions which change the output sound volume of the sound file in the voice output part 19 into i are performed according to parameter data (i) read with the command code BS concerned (Step O1).

[0101]

When the command code read from the time code file 12c3 is judged to be "SS", it shifts to SS processing in drawing 13 (D) (step L4 ->LP gas).

[0102]

In this SS processing (sound file speed i), the directions which change the output speed of the sound file in the voice output part 19 into i are performed according to parameter data (i) read with the command code SS concerned (Step P1).

[0103]

When the command codes read from the time code file 12c3 are judged to be other extended command codes, it shifts to other processings according to the extended command concerned (step L4 ->LQ).

[0104]

Drawing 14 is a figure showing the synchronous reproduction state of an English text, a picture, and a voice file based on the English teaching-materials refresh file in said drawing 2 thru/or drawing 4.

[0105]

This English teaching-materials file (12c) is that by which command processing is performed by that header information (12c1) at every [ by which description setting out was carried out ] batch time (50 ms) (drawing 15;12c1a). First, if the 1st command code "CS" (clear all file) and its parameter data "00" of the time code file 12c3 (refer to drawing 2) are read, The directions which clear the output of all the files are performed (Step K1), and the output of a text, a picture, and a voice file is cleared.

[0106]

If the 2nd command code "DH" (i-th HTML file display) and its parameter data "01" are read, According to the read parameter data (i= 1), ID number =2 of the HTML number 1 is read from the file sequence table 12c2 (refer to drawing 3) with the command code DH concerned (Step H1).

[0107]

And according to the English-conversation text and image frame data of the HTML data which are matched with this ID number =2 and read from the contents data 12c4 (refer to drawing 4) of contents, as shown in drawing 14 (A), The text display frame X and the image display frame Y to the indicator 18 are set up (Step H2).

[0108]

If the 3rd command code "DI" (i-th image file display) and its parameter data "01" are read, According to the read parameter data (i= 1), ID number =6 of the image number 1 is read from the file sequence table 12c2 (refer to drawing 3) with the command code DI concerned (Step I1).

[0109]

And the image data (picture A) which was matched with this ID number =6, was read from the contents data 12c4 (refer to drawing 4) of contents, and was developed by the image expansion buffer 12e is displayed in the image display frame Y set up by said HTML file (Step I2).

[0110]

If the 4th command code "PS" (i-th sound file play) and its parameter data "01" are read, According to the read parameter data (i= 1), ID number =31 of the voice number 1 is read from the file sequence table 12c2 (refer to drawing 3) with the command code PS concerned (Step J1).

[0111]

And English-conversation voice data 1 which was matched with this ID number =31 and read from the contents data 12c4 (refer to drawing 4) of contents It is outputted from \*\*\*\*\* 19 (Step J2).

[0112]

If the 5th command code "LT" (i-th text load) and its parameter data "01" are read, According to the read parameter data (i= 1), ID number =20 of the text number 1 is read from the file sequence table 12c2 (refer to drawing 3) with the command code LT concerned (Step B1).

[0113]

And the English-conversation text data 1 which was matched with this ID number =20 and read from the contents data 12c4 (refer to drawing 4) of contents It is loaded to the work area of \*\* RAM12C (step B-2).

[0114]

If the 6th command code "VD" (i-th text sentence paragraph display) and its parameter data "00" are read, According to the parameter data (i= 0) read with the command code VD concerned, The ID number of the file sequence table 12c2 (refer to drawing 3) to the text number 0 = the English-conversation text data 1 by which the clause of the English-conversation title character which 19 were read, was matched with this and specified by the contents data 12c4 (refer to drawing 4) of contents was loaded to said RAM12C It is called out of \*\* and displayed in the text display frame X on a display screen (Step C1).

[0115]

If the 7th command code "BL" (character counter reset and i-th clause block specification) and its parameter data "00" are read, The character counter of an English-conversation clause on display is reset with said text display frame X, and the 0th block is specified (Step D1, D2).

[0116]

If the 8th command code "HL" (the highlight and character count to the i-th character) and its parameter data "04" are read, According to the read parameter data (i= 4), highlighting (highlighting) is carried out to the 4th character of text data with the command code HL concerned (step F1).

[0117]

And a character counter counts up to the 4th character (Step F2).

[0118]

If the 9th command code "NP" is read, the present picture, the synchronous display screen of English-conversation text data, and the synchronous output state of English-conversation voice data will be maintained.

[0119]

Thus, according to time code file 12c3 (refer to drawing 2), file sequence table 12c2 (refer to drawing 3), and the contents data 12c4 (refer to drawing 5) of contents in said English-conversation teaching-materials refresh file (12c), the batch time (25 ms) beforehand set as the refresh file concerned -- each time -- by performing command processing. Drawing 14 (A) As shown in - (D), English-conversation text data is displayed in the text display frame X on a display screen, and. The synchronous display of the correspondence image data is carried out into the image display frame Y, the synchronous output of the English-conversation voice data which reads out an English-conversation text on display from the voice output part 19 is carried out further, and a synchronous highlight (emphasis) indication of the read-aloud clause of the English-conversation text concerned comes to be given one by one for every character.

[0120]

CPU11 of the portable device 10 only directs the various command processings according to the command code concerned and its parameter data by this for every unit time of the command processing beforehand described by the refresh file 12b (12c), Synchronous reproduction processing of an English-conversation text file, an English-conversation graphics file, and an English-conversation voice file can be performed.

[0121]

Next, regeneration of a musical piece file as shown by following drawing 15 thru/or drawing 18 is explained as synchronous reproduction processing of two or more of the same kind file as said embodiment.

[0122]

Drawing 15 is a figure showing the time code file 12c3 which constitutes the file 12b (12c)

for musical piece reproduction stored in the memory 12 of said portable device 10.

[0123]

Drawing 16 is a figure showing the file sequence table 12c2 which constitutes the file 12b (12c) for musical piece reproduction stored in the memory 12 of said portable device 10.

[0124]

Drawing 17 is a figure showing the contents data 12c4 of contents which constitutes the file 12b (12c) for musical piece reproduction stored in the memory 12 of said portable device 10.

[0125]

Drawing 18 is a figure showing the synchronous reproduction state of a musical piece text, a picture, and a voice file based on the file for musical piece reproduction in said drawing 15 thru/or drawing 17.

[0126]

This file for musical piece reproduction (12c) is that by which command processing is performed by that header information (12c1) at every [ by which description setting out was carried out ] batch time (50 ms) (12c1a), First, if the 1st command code "CS" (clear all file) and its parameter data "00" of the time code file 12c3 (refer to drawing 15) are read, The directions which clear the output of all the files are performed (Step K1), and the output of a text, a picture, and a voice file is cleared.

[0127]

If the 2nd command code "DH" (i-th HTML file display) and its parameter data "01" are read, According to the read parameter data (i= 1), ID number =2 of the HTML number 1 is read from the file sequence table 12c2 (refer to drawing 16) with the command code DH concerned (Step H1).

[0128]

And according to standard text frame data and music image frame data of HTML data which are matched with this ID number =2 and read from the contents data 12c4 (refer to drawing 17) of contents, as shown in drawing 18 (A), The text display frame X and the image display frame Y to the indicator 18 are set up (Step H2).

[0129]

If the 3rd command code "PS" (i-th sound file play) and its parameter data "01" are read, According to the read parameter data (i= 1), ID number =31 of the voice number 1 is read from the file sequence table 12c2 (refer to drawing 16) with the command code PS concerned (Step J1).

[0130]

And music voice data 1 which was matched with this ID number =31 and read from the contents data 12c4 (refer to drawing 17) of contents It is outputted from \*\*\*\*\* 19 (Step J2). The output sound volume in this case is set up as the default value i= 5.

[0131]

If the 4th command code "LT" (i-th text load) and its parameter data "01" are read, According to the read parameter data (i= 1), ID number =20 of the text number 1 is read from the file sequence table 12c2 (refer to drawing 16) with the command code LT concerned (Step B1).

[0132]

And music lyrics data 1 which was matched with this ID number =20 and read from the contents data 12c4 (refer to drawing 17) of contents It is loaded to the work area of \*\* RAM12C (step B-2).

[0133]

Music lyrics data 1 loaded to said RAM12C according to the parameter data (i= 6) read with the command code VD concerned when the 5th command code "VD" (i-th text sentence paragraph display) and its parameter data "06" were read The 6th clause out of a \*\* text is called, and it is displayed in the text display frame X on a display screen (Step C1).

[0134]

If the 6th command code "DI" (i-th image file display) and its parameter data "01" are read, According to the read parameter data (i= 1), ID number =6 of the image number 1 is read from the file sequence table 12c2 (refer to drawing 16) with the command code DI concerned (Step I1).

[0135]

And the image data (picture A) which was matched with this ID number =6, was read from the contents data 12c4 (refer to drawing 17) of contents, and was developed by the image expansion buffer 12e is displayed in the image display frame Y set up by said HTML file (Step I2). The display position in this case is set up as the default position i= 5 (center).

[0136]

When the 7th command code "LS" (one-line scrolling and character counter count-up) and its parameter data "00" are read, it is text data (music lyrics data 1) on display. It is scrolled by one line, and is displayed, and (Step G1) a character counter counts up one time (Step G2).

[0137]

If the 8th command code "NP" is read, the present picture, the synchronous display screen of music words text data, and the synchronous output state of music voice data will be maintained.

[0138]

When the 81st command code "LS" (one-line scrolling and character counter count-up) and its parameter data "00" are read after this, as drawing 18 (B) shows, it is text data (music lyrics data 1) on display. It is scrolled by one more line, and is displayed, and (Step G1) a character counter counts up one time (Step G2).

[0139]

And if the 82nd command code "MI" (it is image file movement to the i-th position) and its parameter data "01" are read, According to the read parameter data (i= 1), the moving display of the image file (picture A) is carried out to the 1st position (upper left: refer to drawing 6 (A)) on the image display frame Y with the command code MI concerned (Step M1).

[0140]

And a sound file [ in / according to the parameter data (i= 7) read with the command code BS concerned when the 83rd command code "BS" (sound file volume i) and its parameter data "07" were read / the voice output part 19 ] (music voice data 1) Output sound volume is changed into "7" (Step O1).

[0141]

When the 161st command code "LS" (one-line scrolling and character counter count-up) and its parameter data "00" are furthermore read after this, as drawing 18 (C) shows, it is text data (music lyrics data 1) on display. It is scrolled by one more line, and is displayed, and (Step G1) a character counter counts up one time (Step G2).

[0142]

And if the 162nd command code "MI" (it is image file movement to the i-th position) and its parameter data "09" are read, According to the read parameter data (i= 9), the moving display of the image file (picture A) is carried out to the 9th position (lower right: refer to drawing 6 (A)) on the image display frame Y with the command code MI concerned (Step M1).

[0143]

And a sound file [ in / according to the parameter data (i= 5) read with the command code BS concerned when the 163rd command code "BS" (sound file volume i) and its parameter data "05" were read / the voice output part 19 ] (music voice data 1) Output sound volume is changed into "5" (Step O1).

[0144]

When the 241st command code "LS" (one-line scrolling and character counter count-up) and its parameter data "00" are furthermore read after this, as drawing 18 (D) shows, it is text data (music lyrics data 1) on display. It is scrolled by one more line, and is displayed, and (Step

G1) a character counter counts up one time (Step G2).

[0145]

And if the 242nd command code "SI" (it is image file expansion to the i-th size) and its parameter data "03" are read, According to the read parameter data (i= 3), the image file (picture A) on an image display frame is changed and displayed on the 3rd size (vertical maximum size: refer to drawing 6 (B)) with the command code SI concerned (Step N1).

[0146]

And a sound file [ in / according to the parameter data (i= 8) read with the command code BS concerned when the 243rd command code "BS" (sound file volume i) and its parameter data "08" were read / the voice output part 19 ] (music voice data 1) Output sound volume is changed into "8" (Step O1).

[0147]

Thus, according to time code file 12c3 (refer to drawing 15), file sequence table 12c2 (refer to drawing 16), and the contents data 12c4 (refer to drawing 17) of contents in said musical piece refresh file (12c), the batch time (50 ms) beforehand set as the refresh file concerned -- each time -- by performing command processing. Drawing 18 (A) As shown in - (D), music words text data is displayed in the text display frame X on a display screen, and. The synchronous display of the correspondence image data is carried out into the image display frame Y, further, the synchronous output of the musical piece voice data of a music words text on display is carried out from the voice output part 19, and synchronous control of the position and size change of a graphics file, the output-sound-volume change of a voice file, etc. comes to be carried out one by one.

[0148]

CPU11 of the portable device 10 by this to the refresh file 12b (12c). Synchronous reproduction processing of a musical piece text file, a musical piece graphics file, and a musical piece voice file can be performed only by directing the various command processings according to the command code concerned and its parameter data one by one for every unit time of the command processing described beforehand. Therefore, the burden of the main process of CPU becomes light and synchronous reproduction processing which contains a text picture sound easily also by comparatively small CPU of throughput can be performed.

[0149]

Although it had composition which performs the clause highlight (emphasis) display doubled with the output of the voice file in the display of the text file in synchronous reproduction processing of the text file, graphics file, voice file, etc. in said each embodiment, As shown in following drawing 19, it is good also as composition which performs the text change display doubled with the recovery status of a file by a character color change display, a character size change display and a character transparent display, font change display, etc.

[0150]

Although it had composition which performs a doubling [ with the recovery status of each file ] repositioning display, and a size-change display in the display of the graphics file in synchronous reproduction processing of the text file, graphics file, voice file, etc. in said each embodiment, It is good also as composition which performs the exchange display of the graphics file doubled with the recovery status concerned.

[0151]

As shown in drawing 19, it is good also as composition which replaces an HTML file according to the recovery status of a file.

[0152]

Drawing 19 is a figure showing the various change reproduction states doubled with the recovery status of the file accompanying file regeneration of said portable device 10.

[0153]

Namely, in [ as shown for example in drawing 19 (A) ] the text display frame X1 of HTML

file 1, Further in [ to compensate for the voice file output of vocabulary special training ] the text display frame X2 in color-change display M Carrying out by carrying out blue specification of the text data \*\*\*\*, It is good also as composition which synchronizes by the appearance display N, a font change display, etc. in a transparent character, and shows the display of the semantic content of the language corresponding to the portion of said color change display M.

[0154]

As shown in drawing 19 (B), said each display frame X1 and X2 are good also as composition which replaces an HTML file according to the reproduction procedure situation of a file.

[0155]

Therefore, according to the file regenerative function by the portable device 10 of said composition. According to the regeneration program 12a beforehand memorized by ROM12A, To the file 12b (12c) for reproduction at every [ of the command processing by which setting-out description is carried out beforehand ] unit time (25 ms/50ms). Only by reading the command code arranged by the time code file 12c3 and its parameter data, and directing the processing corresponding to the command, Since synchronous reproduction processing of the text, picture, voice file, etc. according to each command described by the time code file 12c3 concerned is performed, load of CPU11 can be made very small and synchronous reproduction of various files can be performed.

[0156]

According to the file regenerative function by the portable device 10 of said composition, not only in mere synchronous reproduction processing of a text, a picture, a voice file, etc., Since it had composition performed combining the reproduction effect of various files, such as highlighting and the scroll display of a text, a repositioning display of a picture, and a size-change display, in connection with this file recovery status, more effective synchronous reproduction of various files can be performed.

[0157]

According to the file regenerative function by the portable device 10 of said composition. When the command of a graphics file display is after the present command processing position according to the time code file 12c3 of the file 12c for reproduction, Since it had composition which predicts the graphics file and is developed, the appointed graphics file can be promptly displayed with processing at the actual image display time.

[0158]

The technique of each processing by the portable device 10 indicated in said embodiment, Namely, the file prediction processing by which parallel starting is carried out with the file regeneration shown in the flow chart of drawing 8, and said file regeneration shown in the flow chart of drawing 9, Other command processings accompanying said file regeneration shown in the flow chart of drawing 10, Processing of each of other command processing accompanying said file regeneration shown in the flow chart of drawing 11, The extended command processing accompanying said file regeneration shown in the flow chart of drawing 12, Each technique, such as processing etc. of each extended command processing accompanying said file regeneration shown in the flow chart of drawing 13, as the program which all can make a computer execute -- a memory card (a ROM card.) A RAM card etc. can be stored in the external recording media 13, such as magnetic disks (a floppy disk, a hard disk, etc.), optical discs (CD-ROM, DVD, etc.), and semiconductor memory, and can be distributed. And various computer terminals provided with the communication function with communication network (Internet) N, By reading into the memory 12 the program memorized by this external recording medium 13 by the recording-medium reading section 14, and controlling operation by this read program, The multi-file synchronous reproduction function in which it explained in said embodiment can be realized, and same processing by the technique mentioned above can be performed.

[0159]

The data of the program for realizing said each technique, A communication network (Internet) N top can be made to transmit as a gestalt of a program code, The aforementioned program data can be incorporated from the computer terminal connected to this communication network (Internet) N, and the multi-file synchronous reproduction function mentioned above can also be realized.

[0160]

the invention in this application is not limited to said each embodiment, and in the range which does not deviate from the gist, many things are boiled and it can be changed at an execution phase The invention of various stages is included in said each embodiment, and various inventions may be extracted by the proper combination in two or more constituent features indicated. For example, even if some constituent features are deleted from all the constituent features shown in each embodiment or some constituent features are put together, SUBJECT described in the column of Object of the Invention is solvable, and when the effect described in the column of the effect of the invention is acquired, the composition which these constituent features were deleted or was put together may be extracted as an invention.

[0161]

## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1]The block diagram showing the composition of the electronic circuit of the portable device 10 concerning the embodiment of the regeneration control device of this invention.

[Drawing 2]The figure showing the time code file 12c3 which constitutes the file 12b (12c) for reproduction stored in the memory 12 of said portable device 10.

[Drawing 3]The figure showing the file sequence table 12c2 which constitutes the file 12b (12c) for reproduction stored in the memory 12 of said portable device 10.

[Drawing 4]The figure showing the contents data 12c4 of contents which constitutes the file 12b (12c) for reproduction stored in the memory 12 of said portable device 10.

[Drawing 5]The figure matching and showing the contents of a command by which analysis processing is carried out based on the command code, its parameter data, and the regeneration program 12a of the various commands described by the time code file 12c3 (refer to drawing 2) of said portable device 10.

[Drawing 6]It is a figure showing the impact efficiency gestalt and size-change gestalt of an image file accompanying the extended command described by the time code file 12c3 (refer to drawing 2) of said portable device 10, As for the figure (A), the figures (B) are a figure which specifies the movement zone of the image file accompanying extended command MI, and a figure which specifies the change size of the image file accompanying extended command SI.

[Drawing 7]The figure showing the various file stored conditions of the file 12b for encryption reproduction stored in FLASH memory 12B of said portable device 10.

[Drawing 8]The flow chart which shows regeneration according to the regeneration program 12a of said portable device 10.

[Drawing 9]The flow chart which shows the prediction processing by which parallel starting is carried out with regeneration according to the regeneration program 12a of said portable device 10.

[Drawing 10]The flow chart which shows other command processings accompanying regeneration according to the regeneration program 12a of said portable device 10.

[Drawing 11]The flow chart which shows the contents of processing of each of other command processing accompanying regeneration according to the regeneration program 12a



of said portable device 10.

[Drawing 12]The flow chart which shows the extended command processing accompanying regeneration according to the regeneration program 12a of said portable device 10.

[Drawing 13]The flow chart which shows the contents of processing of each extended command processing accompanying regeneration according to the regeneration program of said portable device 10.

[Drawing 14]The figure showing the synchronous reproduction state of an English text, a picture, and a voice file based on the English teaching-materials refresh file in said drawing 2 thru/or drawing 4.

[Drawing 15]The figure showing the time code file 12c3 which constitutes the file 12b (12c) for musical piece reproduction stored in the memory 12 of said portable device 10.

[Drawing 16]The figure showing the file sequence table 12c2 which constitutes the file 12b (12c) for musical piece reproduction stored in the memory 12 of said portable device 10.

[Drawing 17]The figure showing the contents data 12c4 of contents which constitutes the file 12b (12c) for musical piece reproduction stored in the memory 12 of said portable device 10.

[Drawing 18]The figure showing the synchronous reproduction state of a musical piece text, a picture, and a voice file based on the file for musical piece reproduction in said drawing 15 thru/or drawing 17.

[Drawing 19]The figure showing the various change reproduction states doubled with the recovery status of the file accompanying file regeneration of said portable device 10.

[Description of Notations]

10 -- Portable device

11 -- CPU

12 -- Memory

12 A--ROM

12B -- FLASH memory

12 C--RAM

12c1 -- Header information

12c1a -- Batch time

12c2 -- File sequence table

12c3 -- Time code file

12c4 -- The contents data of contents

12a -- Regeneration program

12b -- Enciphered file for reproduction (CAS file)

12c -- Decoded file for reproduction (CAS file)

12d -- Image expansion finishing flag

12e -- Image expansion buffer

13 -- External recording medium

14 -- Recording-medium reading section

15 -- Electrical transmission control section

16 -- Communications department

17 -- Input part

18 -- Indicator

19 -- Voice output part

20 -- Communication equipment (house PC)

30 -- Web server

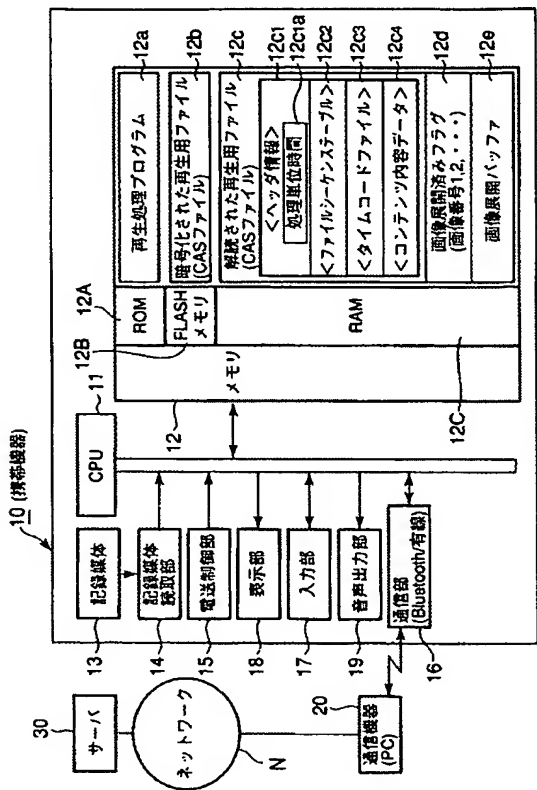
N -- Communication network (Internet)

X -- a text display frame

Y -- Image display frame

DRAWINGS

[Drawing 1]



[Drawing 2]

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(ファイルシーケンステーブル)

12c2

HTML	0	ID番号 = 1
	1	ID番号 = 2
	2	
	...	
画像	0	ID番号 = 5
	1	ID番号 = 6
	2	ID番号 = 7
	3	ID番号 = 8
	4	ID番号 = 9
	5	ID番号 = 10
	6	ID番号 = 11
	7	ID番号 = 12
	...	
テキスト	0	ID番号 = 19
	1	ID番号 = 20
	2	ID番号 = 21
	...	
音声	0	ID番号 = 30
	1	ID番号 = 31
	2	ID番号 = 32
	...	

[Drawing 4]

12c4

(コンテンツ内容データ)

(E1)	ID番号 = 1	(標準テキストフレームデータ)
(E2)	ID番号 = 2	(英会話テキスト・画像フレームデータ)
...	...	...
(E5)	ID番号 = 5	(英会話テキストオープニング画像データ)
(E6)	ID番号 = 6	(画像A)
...	...	...
(E10)	ID番号 = 10	(画像E)
(E11)	ID番号 = 11	(画像F)
...	...	...
(E19)	ID番号 = 19	(英会話タイトル文字)
(E20)	ID番号 = 20	(英会話テキストデータ①)
(E21)	ID番号 = 21	(英会話テキストデータ②)
...	...	...
(E30)	ID番号 = 30	(英会話オープニング音声データ)
(E31)	ID番号 = 31	(英会話音声データ①)
(E32)	ID番号 = 32	(英会話音声データ②)
...	...	...

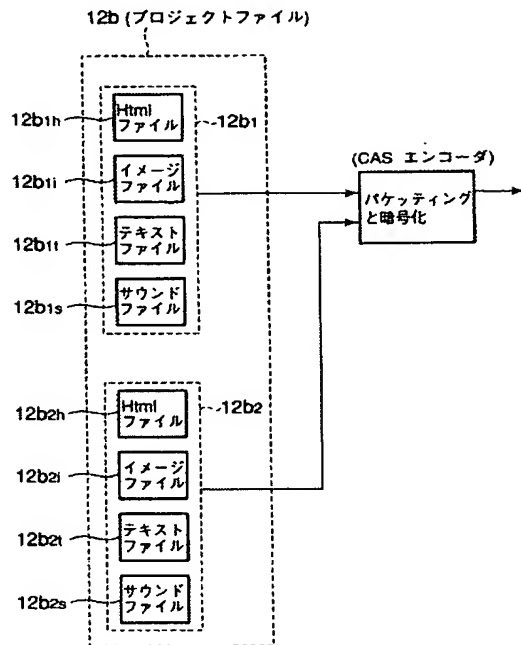
[Drawing 5]

	コマンド		パラメータ	内容
	name	code		
標準	LT	0x01	i	i番目のテキストファイルをロード
	VD	0x02	i	i番目のテキスト文節を表示
	BL	0x03	i	文字カーソルをリセットし、文節中のi番目のアノットを指定
	HN	0x04	0x00	ハイライトせずに、文字カーソルを1カーソルアップ
	HL	0x05	i	i番目の文字までハイライトして、文字カーソルをi番目の文字までカーソル
	LS	0x06	0x00	1行スクロールして、文字カーソルを1カーソルアップ
	DH	0x10	i	i番目のhtmlファイルを表示
	DI	0x11	i	i番目のイメージファイルを表示
	PS	0x12	i	i番目のサウンドファイルをプレイ
	CS	0x13	0x00	クリアスクリーン(クリアオールファイル)
	PP	0x20	i	基本タイムをi秒間停止
	FN	0x21	0x00	処理を終了
	NP	0xFF	0xFF	無効命令(no operation)
拡張	MI	0x14	i	i番目の位置にイメージファイルを移動
	SI	0x15	i	i番目のサイズにイメージファイルを変更
	BS	0x16	i	サウンドファイル音量をiに変更
	SS	0x17	i	サウンドファイルスピードをiに変更

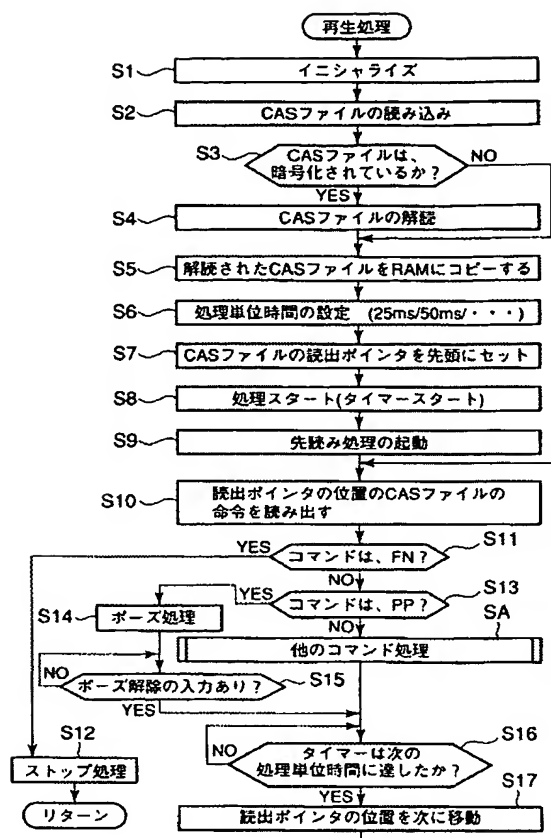
[Drawing 6]



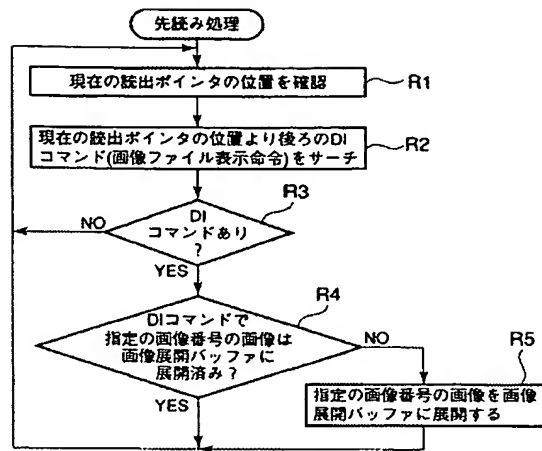
[Drawing 7]



[Drawing 8]

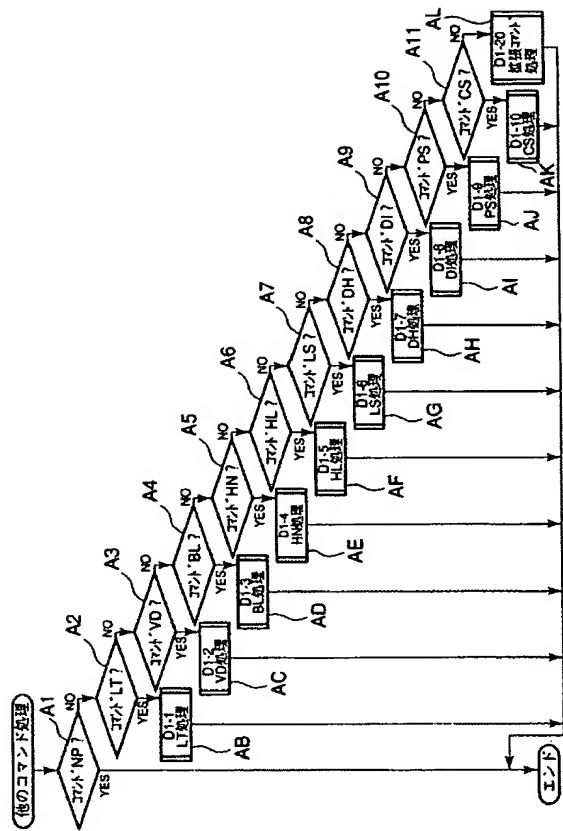


[Drawing 9]

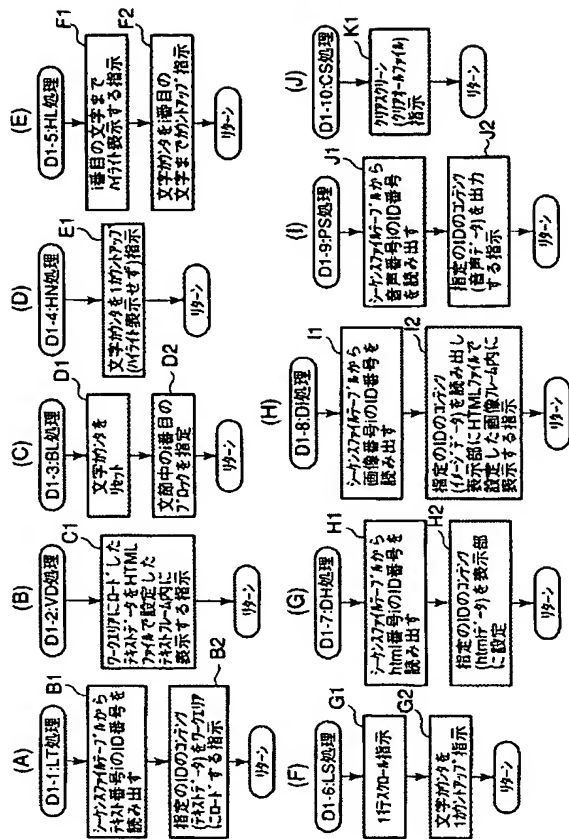


[Drawing 10]

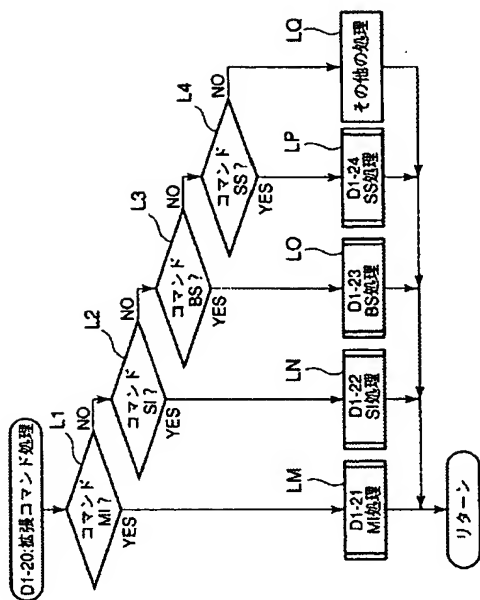




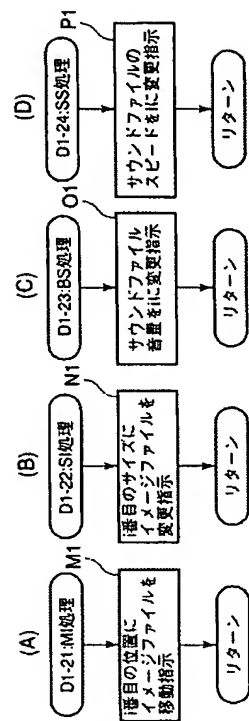
[Drawing 11]



[Drawing 12]




[Drawing 13]




[Drawing 14]


(A) Time : t0~t2 X (テキスト表示フレーム)  
(テキスト①内容) Y (画像表示フレーム)

<p>1 A 2 What high school do you go to? 3 I go to Higashi High School. 4 How many students are there in your school? 5 There are about one hundred fifty students. 6 When was your school founded? 7 It was founded in nineteen sixty-five.</p>	
---	---

(B) Time : t3~t4 X Y (画像A)

<p>2 What high school do you go to? 3 I go to Higashi High School. 4 How many students are there in your school? 5 There are about one hundred fifty students. 6 When was your school founded? 7 It was founded in nineteen sixty-five.</p>	
---	---

(C) Time : t5~t6 X Y (画像E)

<p>4 How many students are there in your school? 5 There are about one hundred fifty students. 6 When was your school founded? 7 It was founded in nineteen sixty-five.</p>	
---	---

(D) Time : t7~ X Y (画像F)

<p>the next paragraph</p>	
---------------------------	--

[Drawing 15]

<ヘッダ情報>		
処理単位時間		
≈50ms		
(タイムコードファイル)		
1バイト 1バイト		
秒		
0	1	CS 00 ...クリアスクリーン(全ファイルクリア)
	2	DH 01 ...HTMLファイル1を表示(表示エリア設定)
	3	PS 01 ...音声1スタート
	4	LT 01 ...テキスト1を指定
	5	VD 06 ...テキストの6番目の文節まで表示
	6	DI 01 ...画像1を表示
	7	LS 00 ...1行テキストをスクロール
	8	NP 00
	...	...
4	81	LS 00 ...1行テキストをスクロール
	82	MI 01 ...画像を位置1(左上)に移動
	83	BS 07 ...音声の音量を7に変更
	84	NP 00
	...	...
8	161	LS 00 ...1行テキストをスクロール
	162	MI 09 ...画像を位置9(右下)に移動
	163	BS 05 ...音声の音量を5に変更
	164	NP 00
	...	...
12	241	LS 00 ...1行テキストをスクロール
	242	SI 03 ...画像をサイズ3(縦又は横最大)にサイズ変更
	243	BS 08 ...音声の音量を8に変更
	244	NP 00
	...	...
30	600	FN 00 終了

[Drawing 16]

12c2

(ファイルシーケンステーブル)

HTLM	0	ID番号 = 1
	1	ID番号 = 2
	2	
	...	
画像	0	ID番号 = 5
	1	ID番号 = 6
	2	ID番号 = 7
	3	ID番号 = 8
	4	ID番号 = 9
	5	ID番号 = 10
	6	ID番号 = 11
	7	ID番号 = 12
	...	
テキスト	0	ID番号 = 19
	1	ID番号 = 20
	2	ID番号 = 21
	...	
音声	0	ID番号 = 30
	1	ID番号 = 31
	2	ID番号 = 32
	...	

[Drawing 17]

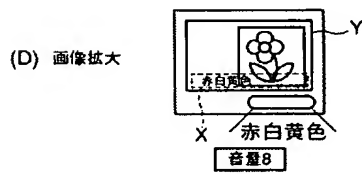
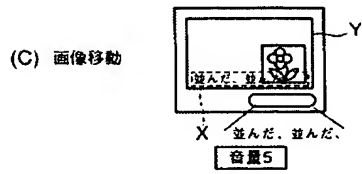
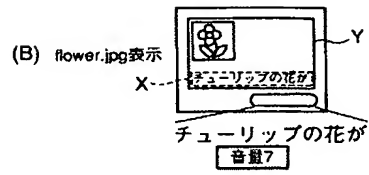
12c4

(コンテンツ内容データ)

(E1)	ID番号 = 1	(標準テキストフレームデータ)
(E2)	ID番号 = 2	(音楽画像フレームデータ)
...	...	...
(E5)	ID番号 = 5	(音楽オープニング画像データ)
(E6)	ID番号 = 6	(画像A)
...	...	...
(E10)	ID番号 = 10	(画像E)
(E11)	ID番号 = 11	(画像F)
...	...	...
(E19)	ID番号 = 19	
(E20)	ID番号 = 20	(音楽歌詞データ①)
(E21)	ID番号 = 21	(音楽歌詞データ②)
...	...	...
(E30)	ID番号 = 30	(英会話オープニング音声データ)
(E31)	ID番号 = 31	(英会話音声データ①)
(E32)	ID番号 = 32	(英会話音声データ②)
...	...	...

[Drawing 18]





[Drawing 19]

